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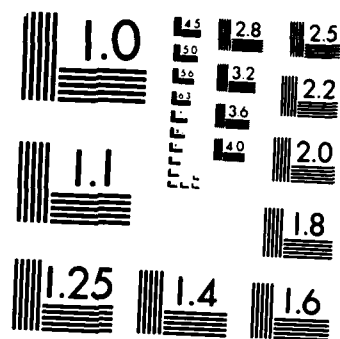
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EVALUATION OF THE EFFECTIVENESS OF THE
WEIGHTED GUIDELINES TO INDUCE CONTRACTOR'S
INVESTMENT IN COST REDUCING FACILITIES EQUIPMENT

(UNCLASSIFIED)

FINAL REPORT

15 August 1984

Contract No. MDA903-82-G-0053

Prepared for:

Defense Systems Management College
Fort Belvoir, VA 22060

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I. EXECUTIVE SUMMARY

Purpose of Study

The main objective of this report was to determine the adequacy of the present Weighted Guidelines profit policy for improving the productivity of defense contractors and to assess whether or not the profit policy is providing a stimulus for strengthening the industrial base. The scope of our analysis consisted of the following approach:

- Reviewed literature of all material which pertained to the Weighted Guidelines profit policy which had been published since 1976.
- Developed an investment model as the foundation to understanding the process of corporate capital investments.
- Compared analyses and tests which were presented in Profit '76 and Profit '82.
- Used Weighted Guidelines profit policy information gained through contacts within the Services and industry.
- Performed analyses on financial information obtained from various government profit centers.

Investment and Financial Trends, Pre-1976

Through a review of the conclusions presented in Profit '76, the researchers found that the profitability of the Federal Trade Commission durable goods producers was higher than that of the government profit centers. We also found that the Federal Trade Commission durable goods producers were investing more in their assets than were the government profit centers. We then noted that the Profit '76 study team saw a strong correlation between the Federal

Trade Commission durable goods producers high profitability and their high investment level. The Profit '76 study made recommendations which changed the Weighted Guidelines in 1976 to attain increased DOD contractor investment (with resultant cost reductions) by increasing the profitability of DOD contracts. A prime impediment was the DOD cost-based pricing approach. Any investment a government contractor made in cost reducing facilities or equipment would not necessarily lead to benefits for the contractor. That is, the cost reducing investment would lead to benefits of lower costs for the government but with no motivation to the contractor to make those investments.

Investment and Financial Trends, 1978-1979

Upon examining the trends in capital investments for the government profit centers from 1976-1977 to 1978-1979, we found that investments were being made in contractor facilities and equipment. However, these investments did not reflect an increase in relative investment levels. The ratio of the government profit centers' facilities and equipment to their costs remained the same between 1976-1977 to 1978-1979, which meant the increases in facilities and equipment were at a relatively constant level as a ratio of sales.

The primary cause for this behavior appeared to be the continued emphasis of contractor cost-based pricing. With the use of contractor cost-based pricing any reduction in the cost basis for contracts only resulted in reduced profits for the profit center. The changes in the Weighted Guidelines policy in 1976 appeared to have no impact on contractor behavior concerning investments.

Upon examining the investment trends of the Federal Trade Commission durable goods producers, we found their assets to be increasing while their cost of sales were decreasing. The Weighted Guidelines profit policy was changed again in 1980. The basic reason for the changes was to try to motivate government profit centers, through the profit policies, to invest in cost reducing facilities or equipment.

Investment and Financial Trends, 1980-1982

After examining the trends in capital investments for the government profit centers from 1978-1979 to 1980-1982, the researchers found that the government profit centers were making increased investments in facilities and equipment. The reasons for these investments appeared to be external to the Weighted Guidelines profit policy and may include such causes as the enactment of the Accelerated Cost Recovery System (ACRS) for personal property which allowed for accelerated methods for recovery of capital costs for most depreciable property and the enactment of government shared saving programs such as the Industrial Modernization Incentives Program (IMIP) and the Technology Modernization Program (TECH MOD). With the implementation of such programs the government profit centers were able to benefit from a win-win situation -- in which the government profit centers were able to gain and the government was able to attain its goal of reducing cost.

FINDINGS AND RECOMMENDATIONS

Finding 1: Neither DPC 76-3 Nor DAC 76-23 Induced Capital Investments in Cost Reducing Facilities and Equipment

The goal of DPC 76-3 was to provide for a higher return on sales for government contractors, which would in turn stimulate capital investments. The desired result was to produce lower program costs. However upon examining the increases in the net book value of facilities and equipment to costs of government profit centers, we found the ratio remained the same between 1976-1977 to 1978-1979. With the use of cost-based pricing, investments in facilities and equipment were being made but only at the rate necessary to maintain the same proportionate cost basis.

The goal of DAC 76-23 was the same as DPC 76-3, to induce government contractors to invest in cost reducing facilities and equipment. Sizeable increases in the government contractors' facilities and equipment were being made, at faster rates than their costs were increasing, which indicated cost reductions were being realized through these investments. However, at the same

time the percentage of costs provided by the DOD to these government profit centers was decreasing. Combining this with the fact that cost based pricing was still being used, and that the ratio of average negotiated profit to sales remained basically the same, indicated that the percentage of the profits provided by the DOD to these profit centers was also decreasing. The Weighted Guidelines profit policy could not be given credit for this increase of the government profit centers net book value of facilities and equipment to costs.

Finding 2: Programs External to the Weighted Guideline Profit Policy Induced Government Profit Centers to Invest in Cost Reducing Facilities and Equipment

New tax legislation which was enacted to permit accelerated methods for recovery of capital costs for most depreciable property was thought to have been the primary force behind the addition of assets for the Federal Trade Commission durable goods producers, the DOD contracting companies, and the government profit centers. Even during the times of high inflation their assets grew at faster rates than their sales. Another driving force behind the additions to assets of the government profit centers were the special programs such as IMIP and TECH MOD, which permitted government contractors to benefit in the investment of cost reducing facilities or equipment.

Recommendation 1: DOD Should Continue the Use of the Weighted Guidelines Profit Policy, However it Should Not be Used as a Method for Inducing Cost Reducing Facilities

The Weighted Guidelines approach is a sound approach in determining the profit on defense contracts, it is, however, not a good method with which to motivate contractors to invest in cost reducing facilities and equipment. The Weighted Guidelines does not invite defense contractors to invest in cost reducing facilities because it is founded upon the concept of cost-based pricing. With the use of cost-based pricing, any cost reducing investments tend to reduce the contractor costs and thus contractor profits.

Recommendation 2: The ACRS Deduction and the Shared Savings Programs Should be Maintained

It was not until the enactment of the ACRS deduction and the following enactment of the shared savings programs that government profit centers began to invest in cost reducing facilities and equipment. Prior to their implementation, government profit centers increases in facilities and equipment were equal to their increases in costs, which meant they did not reduce their costs and likewise their profits remained basically flat. However with the new tax legislation and the shared savings programs the government profit centers are able to benefit from a win-win situation, which is necessary for the survival and revival of the industrial defense base.

II. INTRODUCTION

The Weighted Guidelines method of determining profit for defense contractors was published originally in 1964. A key objective of the DOD profit policy is to reduce the cost of defense preparedness by incentivizing defense contractor's investment in modern cost reducing facilities and other improvements in efficiency.

Since the inception of the profit policy, there have been two sets of alterations made to accommodate recommended changes designed to correct the problem of an eroding defense industrial base. There was the perception, reinforced by 1980 House Armed Services Defense Industrial Base panel report, that the profit policies of defense contracts directly contributed to the erosion of the defense industrial base.

The purpose of this study is to determine the adequacy of the present Weighted Guidelines profit policy for improving the productivity of defense contractors and to assess whether or not the profit policy is providing a stimulus for strengthening the industrial base.

In order to do this, the study examines and compares the investment and financial trends of government profit centers, (specific sections of an organization which function solely for the purpose of government business) Federal Trade Commission durable goods producers, and Department of Defense companies receiving the largest dollar volume of prime contract awards in fiscal year 1982 (hereafter referred to as DOD contracting companies). These examinations and comparisons are presented for the time period prior to the first alterations made to the Weighted Guidelines in 1976, for the time period between 1976 and the next revisions made to the Weighted Guidelines in 1980 and for the time between 1980 and the most recent year where the financial and investment

data was available, 1982. Also interjected into the study within the investment and financial trends for each time period, are the industry and service perceptions of the Weighted Guidelines profit policy.

Using the examinations and comparisons of the investment and financial trends for DOD contracting companies, government profit centers, and Federal Trade Commission durable goods producers, and the industry and service perceptions of the Weighted Guidelines, the study presents conclusions on the adequacy of the Weighted Guidelines profit policy to improve the productivity of defense contractors and to act as a stimulus for strengthening the industrial base.

III. RESEARCH METHODOLOGY

The foundation for our investigation of the effectiveness of the Weighted Guidelines profit policy to promote capital investments, is an Investment Model. The Investment Model, developed under this contract, is a conceptual description of the budgeting and strategic investment decision system which is commonly found in both DOD and commercial contractors.

Our research approach uses the Investment Model, accompanied by business characteristics unique to the DOD related industries, to explain the past and present industry reactions to the DOD profit policies. The Investment Model is illustrated in Figure 1. The model is based upon the structure of the three levels of the organization and how they interact with corporate investment decisions.

Within the Investment Model there are three interacting organizational levels. The three levels are: 1) the tactical level where routine functions are performed day to day, 2) the operating level where managerial concern focuses on the efficient utilization of groups of tactical performers, and 3) the strategic level where management is concerned with integrating the planning of the groups which comprise the organization and with establishing overall strategy and direction.

Generally, proposals to develop new products or modernize production equipment originate with tactical personnel. In selecting proposals to submit for approval, tactical level personnel follow their perceptions of the objectives of the higher level organizational elements. These objectives include profitability and return on investment. Thus, the proposer's estimate of the amount of profit resulting from the savings of developing new products or modernizing production equipment shapes the initial and most significant case

THE INVESTMENT MODEL

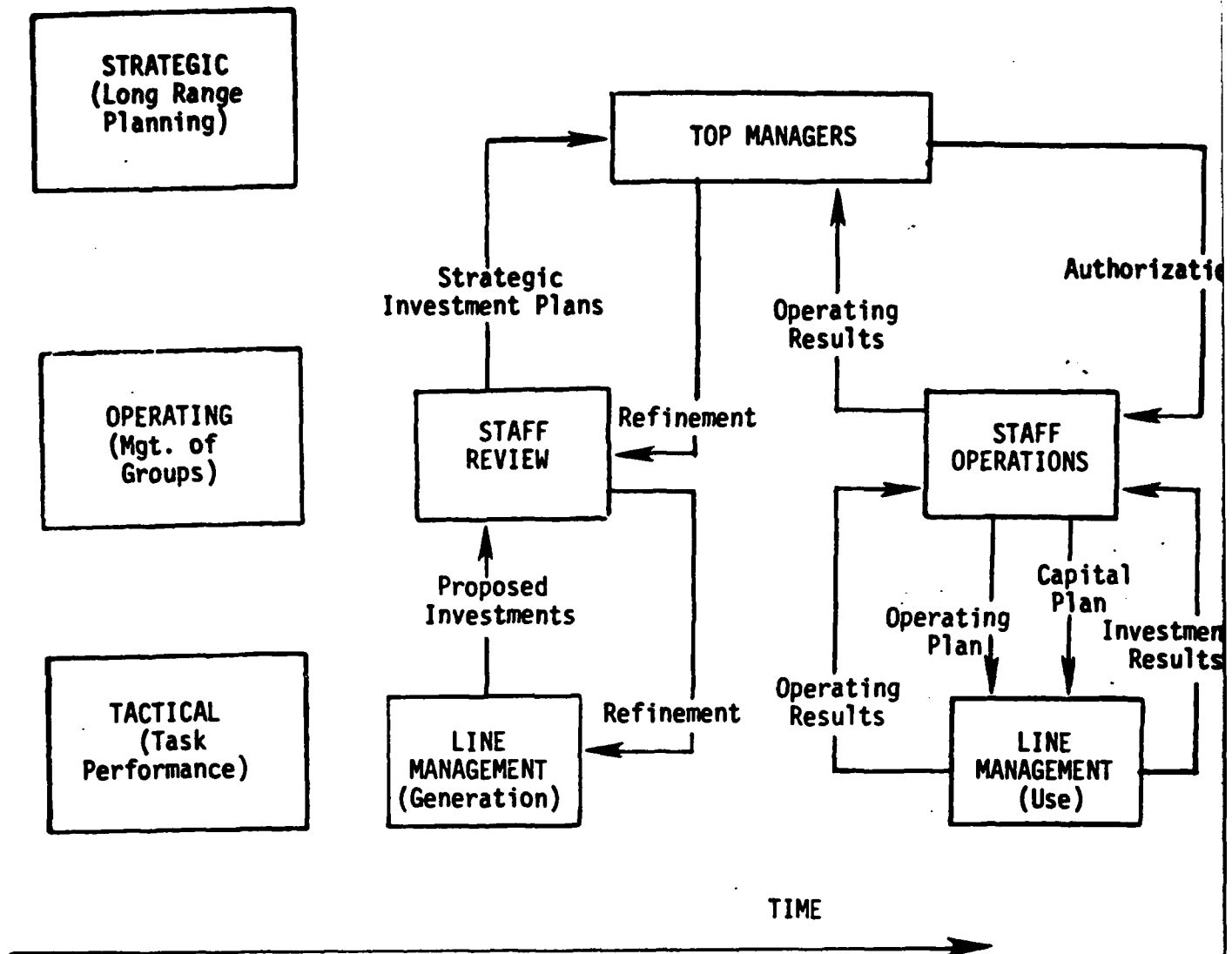


Figure 1.

for the proposal. Proposals which fail to meet the objectives of higher levels of the organization are usually eliminated at this level. Approval of lower dollar value proposals can be made at the tactical level. Proposals above the predetermined limit are referred to the operational level.

When a proposal to develop new products or modernize production equipment reaches the operational level, the cost and revenues or savings are carefully examined. Once it is determined the proposal is within the corporate profitability and return on investment guidelines, the operational level then applies additional criteria which are provided by strategic management. These additional judgments include assessing whether the proposal fits in with the business portfolio matrix of the company.

The business portfolio matrix places the firms product lines into four groups, based upon the cash flow characteristics of the product lines. These four groups have been characterized (by the Boston Consulting Group) as stars, cash cows, dogs, and question marks.

Stars are products which are growing rapidly and require large amounts of cash to maintain their market positions. The firms best investment and growth opportunities will be found among the stars. Cash cows are high market share products or divisions having low growth opportunities. Since cash cows have low growth potential they have low reinvestment priority. Dogs are products or divisions whose low growth and market share result in poor profits. Cash may be required for them to survive. Question marks are products or business units having high growth, but low market share. Question mark products or business units can become cash traps. That is, the costs of obtaining the high market share causes the firms management to skimp on investment, thus never attaining the market share needed to become stars.

Generally, investments are directed to the stars or to those question marks which the company believes can grow into stars. Many segments of the defense market do not appear to offer the growth potential to be viewed as stars and thus receive low priority for investment.

Given the proposal meets the corporate profitability and return on investment guidelines, the proposal will be approved or disapproved depending on where it fits within the business portfolio matrix. Borderline proposals are referred to the strategic level for informal decision readings prior to submitting the capital budget for final approval.

Our research methodology also included the following: A review of the investment and financial trends of the Federal Trade Commission durable goods producers as provided in their Quarterly Financial Reports; a review of the investment and financial trends of government profit centers as provided in the DD 1499 data base; the creation of a data base containing investment and financial data from the annual reports of 50 of the top 100 companies receiving the largest dollar volume of prime contract awards; a survey of the investment and financial trends for government profit centers; a survey of DOD and industrial attitudes about the Weighted Guidelines profit policy; a review of tax legislation pertaining to capital investments; a review of past profit studies, Profit '76 and Profit '82; a review of the Industrial Modernization Incentives Program; an examination of the Defense Acquisition Circular No. 76-23 and Defense Procurement Circular No. 76-3 and 76-12; a review of the Defense Acquisition Regulation Sections 3-808 through 3-811; an examination of the General Accounting Office's "Defense Industry Profit Study."

IV. HISTORICAL BASIS OF DOD PROFIT POLICY

The Weighted Guidelines Method of determining profit for defense contracts originated in 1964. A key objective of the profit policy is to reduce the cost of defense preparedness by incentivizing defense contractors' investments in modern cost reducing facilities and other improvements in efficiency.

The original profit policy has been through two iterations of changes. The first changes came about in September 1976 and were published within Defense Procurement Circular (DPC) 76-3. The revisions were a result of the recommendations made by a major Department of Defense study of profit and its relationship to capital investment, commonly referred to as Profit '76. The second round of changes occurred in February 1980 and were published within Defense Acquisition Circular (DAC) 76-23. These modifications were corrections based on practical experience with the profit policy after its initial changes.

Use of the Weighted Guidelines Method for profit or fee development is accomplished through the use of the Weighted Guidelines Profit/Fee Objective Form, DD Form 1547 shown in Figure 2. The present DD Form 1547 is divided into five parts: Contractor Effort, Contractor Risk, Facilities Investment, Special Factors, and Cost of Money Offset.

Before proceeding to the explanations of the changes to the Weighted Guidelines profit policy, it may be beneficial to define the five parts of the DD Form 1547 and how they are presently being used to develop profit or fee objectives.

Contractor Effort, Part 1 -- is a measure of how much the contractor is expected to contribute to the overall effort necessary to meet the contract performance requirements in an efficient manner. This factor, which is apart from

WEIGHTED GUIDELINES PROFIT/FEE OBJECTIVE						
1. CONTRACTOR IDENTIFICATION	a. COMPANY NAME			b. DIVISION NAME (if any)		
	c. STREET ADDRESS			d. CITY	e. STATE	f. ZIP CODE
2. WEIGHTED GUIDELINES CATEGORY (Check one)				3. TYPE OF CONTRACT (Ref DAR, Sec III, Part 4)		
<input type="checkbox"/> MANUFACTURING <input type="checkbox"/> RESEARCH AND DEVELOPMENT <input type="checkbox"/> SERVICES						
4. BASIC PROCUREMENT INSTRUMENT IDENTIFICATION NO.						
a. PURCHASING OFFICE		b. FY	c. TV/PROCINST CODE	d. PRISM		e. SPIN
5. WEIGHTED GUIDELINES PROFIT FACTORS (DAR 3-406.4)						
PROFIT/FEE FACTOR OR SUBFACTOR (a)	MEASUREMENT BASE (b)	PROFIT WEIGHT RANGES			ASSIGNED WEIGHT (c)	PROFIT/FEE DOLLARS (d)
		MPS (e)	ADDN (f)	OVEN (g)		
PART I - CONTRACTOR EFFORT						
7. MATERIAL ACQUISITION						
a. SUBCONTRACTED ITEMS		1 TO 5	1 TO 5	1 TO 5		
b. PURCHASED PARTS		1 TO 4	1 TO 4	1 TO 4		
c. OTHER MATERIAL		1 TO 4	1 TO 4	1 TO 4		
8. ENGINEERING						
a. DIRECT LABOR		5 TO 15	5 TO 15			
b. OVERHEAD		5 TO 5	5 TO 5			
9. MANUFACTURING						
a. DIRECT LABOR		5 TO 5	5 TO 5			
b. OVERHEAD		4 TO 7	4 TO 7			
10. SERVICES						
a. DIRECT LABOR				5 TO 15		
b. OVERHEAD				4 TO 5		
11. OTHER COSTS						
12. GENERAL MGMT - G & A		5 TO 5	5 TO 5	5 TO 5		
13. SUBTOTAL PROFIT/FEE						
14. LESS: ADJUSTMENT FACTOR		30				
15. TOTAL EFFORT						
PART II - CONTRACTOR RISK						
16. COST RISK	(Total from Col b)	5 TO 5	5 TO 7	5 TO 4		
PART III - FACILITIES INVESTMENT						
17. CAPITAL EMPLOYED	(Line 5, DD Form 1561)	15 TO 20				
18. BASIC PROFIT/FEE OBJECTIVE (Items 14 + 15 + 17, Col g)						
PART IV - SPECIAL FACTORS						
19. SPECIAL PROFIT/FEE OBJ	(See DAR 3-406.5(a))					
a. PRODUCTIVITY						
b. INDEPENDENT DEVELOPMENT	(See DAR 3-406.5(b))	1 TO 4	1 TO 4			
c. OTHER	(Total from Item 18)	-5 TO +5	-5 TO +5	-5 TO +5		
20. TOTAL SPECIAL PROFIT/FEE OBJECTIVE						
21. SUBTOTAL PROFIT/FEE OBJECTIVE (Items 18 + 19d, col g)						
PART V - COST OF MONEY OFFSET						
(Applicable to Research and Development and Service Weighted Guidelines only.)						
22. LESS: FACILITIES CAPITAL COST OF MONEY (DAR 3-406.3(a)(1)(a))						
23. TOTAL PROFIT/FEE OBJECTIVE (Items 20 + 21, col g)						

DD FORM 1547
1 JAN 50

PREVIOUS EDITIONS ARE OBSOLETE.

Figure 2.

the contractor's responsibility for contract performance, takes into account the resources necessary and what the contractor must do to accomplish a conversion of ideas and materials into the final product called for in the contract. This is a recognition that, within a given performance output or within a given sales dollar figure, necessary efforts on the part of individual contractors can vary widely in both value and quantity, and that the profit objective should reflect the extent and nature of the contractor's contribution to total performance. The assessment of Contractor Effort requires analysis of the cost content items within the proposed contract. The cost content items include material acquisition (subcontracted items, purchased parts, and other material), conversion activity (engineering, manufacturing, and service labor), and general management (overhead and G&A).

Contractor Risk Factor, Part II -- reflects the policy of the Department of Defense that contractors bear an equitable share of contract cost risk, and to compensate them for the assumption of that risk. The evaluation of Contractor Risk requires a determination of the degree of cost responsibility the contractor assumes, the reliability of the cost estimates in relation to the task assumed, and the complexity of the task assumed by the contractor. Contractor Risk is specifically limited to the risk of contract costs. Risks on behalf of the contractor such as reputation, losing a commercial market, losing potential profits in other fields, or any risk on the part of the contracting activity, such as the risk of not acquiring an effective weapon, are not within the scope of this factor.

Facilities Investment, Part III -- relates to the consideration to be given in the profit objective in recognition of the investment risk associated with the facilities employed by the contractor. The key factors that contribute to the evaluation of Facilities Investment are the overall effectiveness of the facilities employed, whether the facilities are general purpose or special purpose items, the age of the facilities, the undepreciated value of the facilities, the relationship of the remaining write-off life of the investment and the length of the programs or contracts on which the facilities are employed, and special contract provisions that reduce the contractor's risk of recovery of facilities capital investment.

Special Factors, Part IV -- is divided into three sections: Productivity, Independent Development, and Other.

The Productivity section of the Special Factors may be applied when a pending acquisition involves a follow-on production contract, when reliable actual cost data is available to establish a fair and reasonable cost baseline, and when changes made in the configuration of the item being acquired are not of sufficient magnitude to invalidate price comparability. The amount of productivity reward is based on the estimated cost reduction that can be attributed to productivity gains.

The Independent Development section of the Special Factors is used for contractors who develop, without government assistance, items that have potential military application. These contractors are entitled to special profit consideration on those developed items.

The Other Factors section of the Special Factors is applied to special circumstances on particular acquisitions which relate to contractor participation in the Government's Small Business, Small Disadvantaged Business, and Labor Surplus programs, and to special situations not specifically set forth elsewhere in the guidelines. Participation that is rated as merely satisfactory shall be assigned a weight of zero. Evidence of energetic support may justify a positive weight and poor support a negative weight.

Cost of Money Offset, Part V -- is applicable to research and development and service Weighted Guidelines category contracts only. For these two categories of Weighted Guidelines contracts, the computed allowable cost for facilities capital cost of money (DD Form 1861), is offset dollar for dollar from profit.

The reason this subfactor is not applicable to manufacturing contracts is because the subfactor, Contractor Effort, has a 30% reduction of the profit/fee objective built into the calculation of the profit/fee objective subtotal for manufacturing contracts.

The profit/fee objective for the first four parts of the Weighted Guidelines is determined by multiplying the appropriate measurement base by its assigned profit weight. The assigned weight is based upon the Weighted Guidelines category (manufacturing, research and development, service), the type of the contract (FFP, FPI, CPIF, CPFF), and the profile of the approach the company uses in order to accomplish the contract tasks as applied to each subfactor within their respective profit/fee objective factor.

The total profit/fee objective is determined by adding the profit/fee objectives from Contractor Effort, Contractor Risk, Facilities Investment, and Special Factors. If the contract type is research and development or service, then the cost of money offset is subtracted from the respective subtotal profit/fee objective, in order to compute the total profit/fee objective.

V. INVESTMENT AND FINANCIAL TRENDS, PRE-1976

Efforts to establish the investment and financial performances, before 1976, of DOD contractors in comparison to durable goods producers were accomplished within the Profit '76 study.

The Profit '76 study team was formed under the direction of the Deputy Secretary of Defense, in order to establish the relationship between defense contractor capital investment and corresponding productivity. It was suspected the low levels of investment were due to low profit levels normally associated with the defense business.

The efforts of the Profit '76 study team centered around comparing the differences in profit statistics of defense profit centers to the profit statistics of durable goods producers, as released by the Federal Trade Commission. The results of these comparisons yielded the following information:

- 1) The ratio of pre-tax return on sales to realized profits before taxes was higher for Federal Trade Commission durable goods producers than of government profit centers (see Figure 3). This meant the Federal Trade Commission durable goods producers were able to use their sales base more effectively in generating higher pre-tax profits and their costs were a smaller percentage of their sales base.
- 2) The actual realized pre-tax return on sales of government contracts was markedly less than the originally negotiated profit rates (see Figure 4). The deviation between the negotiated and realized profit rates was explained by two factors. The first factor leading to erosion of negotiated profit was the Armed Services Procurement Regulation (ASPR) Section 15 policy that cer-

Return On Sales :

Realized Profit Before Taxes/Sales

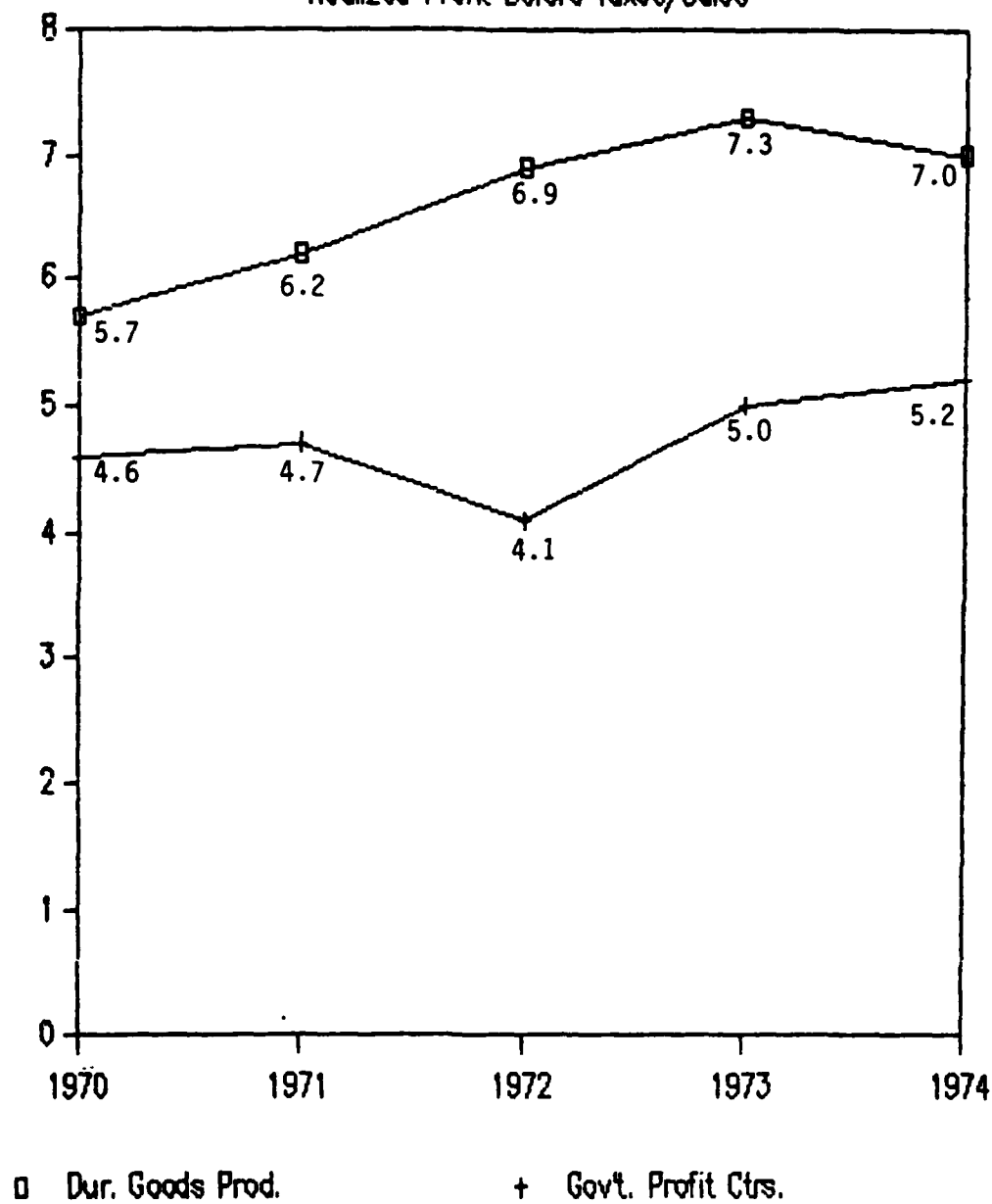


Figure 3. Source: Profit '76 Summary Report

Government Profit Centers

Profit Before Taxes/Sales

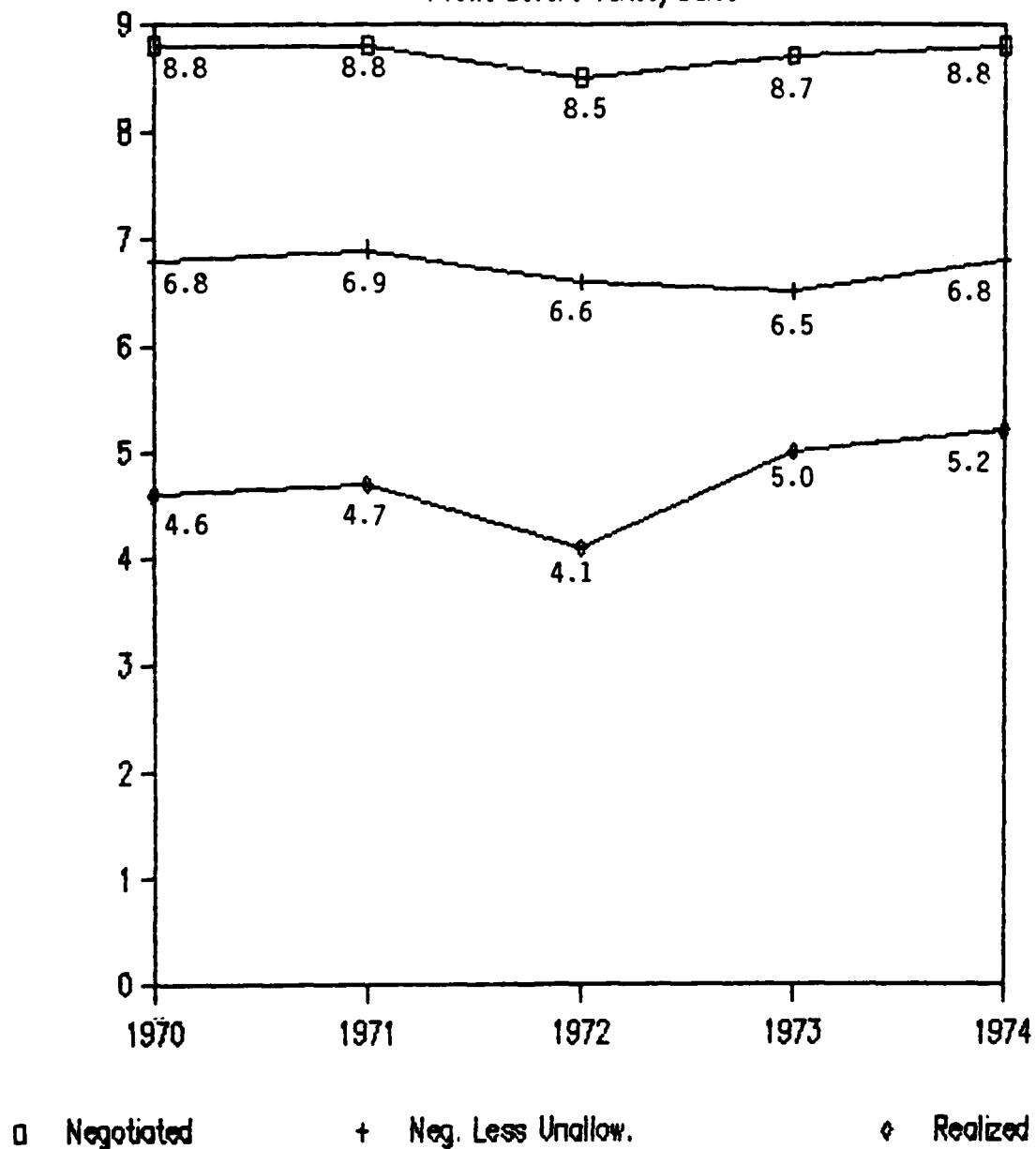


Figure 4. Source: Profit '76 Summary Report

tain costs were unallowable such as interest, over-ceiling independent research and development and bid and proposal costs. The second factor which contributed to degradation of negotiated profit was thought to be cost overruns.

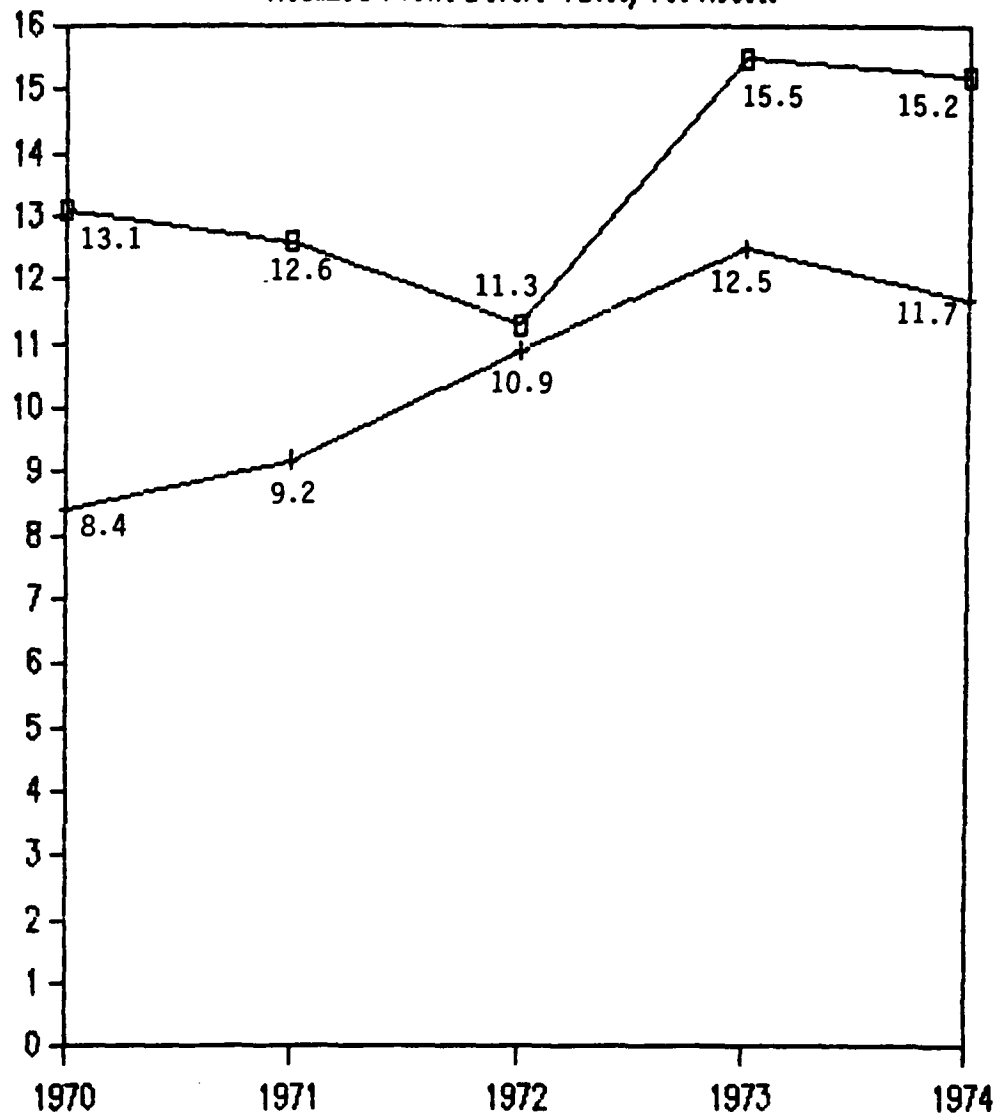
- 3) Government profit centers had a higher pre-tax return on investment than did Federal Trade Commission durable goods producers (see Figure 5). The explanation for this finding was that government contract financing was better than the financing available in commercial industry, and because government contractors were investing less than the commercial industries.
- 4) The ratio of total assets to sales was notably higher for the Federal Trade Commission durable goods producers than it was for government profit centers (see Figure 6). This meant that durable goods producers utilized a greater part of their sales base to invest in total assets than did the government profit centers.

During this time period there were not any findings presented in Profit '76 on how the investment and financial accomplishments of the defense contractors as total business entities compared with the Federal Trade Commission durable goods producers and the specific government profit centers. Therefore, as a point of reference, we created a data base of financial information, taken from Standard and Poor's Stock Reports, of 51 of the top 100 defense contractors (see Appendix A for listing of the contractors). The financial information for the DOD contracting companies includes data from the years 1973 through 1982. For comparative purposes, the data base financial information from the years 1973 through 1975 was contrasted with the information provided in Profit '76 for the years 1970 through 1974.

The 1973-1975 average net income before taxes to sales ratio for DOD contracting companies was 7.4%, only .4% higher than the 7.0% for the Federal Trade Commission durable goods producers. The 1973-1975 average total assets to sales ratio for the DOD contracting companies was 74.1%, only .5% higher than the 73.6% for the Federal Trade Commission durable goods producers (see Figure 7).

Return On Investment

Realized Profit Before Taxes/Tot Assets

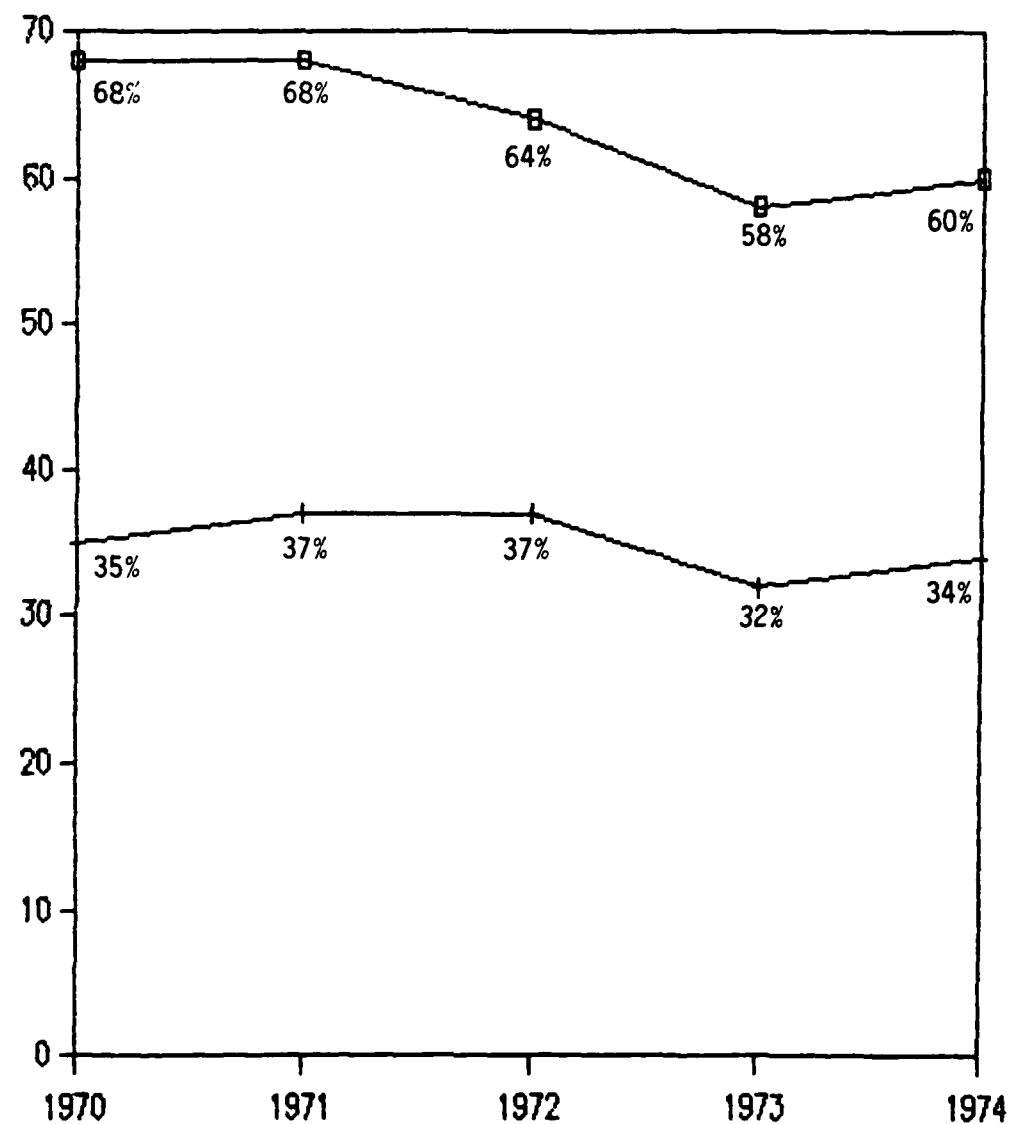


□ Govt. Profit Ctrs.

+ Dur. Goods Prod.

Figure 5. Source: Profit '76 Summary Report

Total Assets/Sales



□ Dur. Goods Prod.

+ Govt. Profit Ctrs.

Figure 6. Source: Profit '76 Summary Report

Financial Database

Average Comparative Ratios 1973-1975

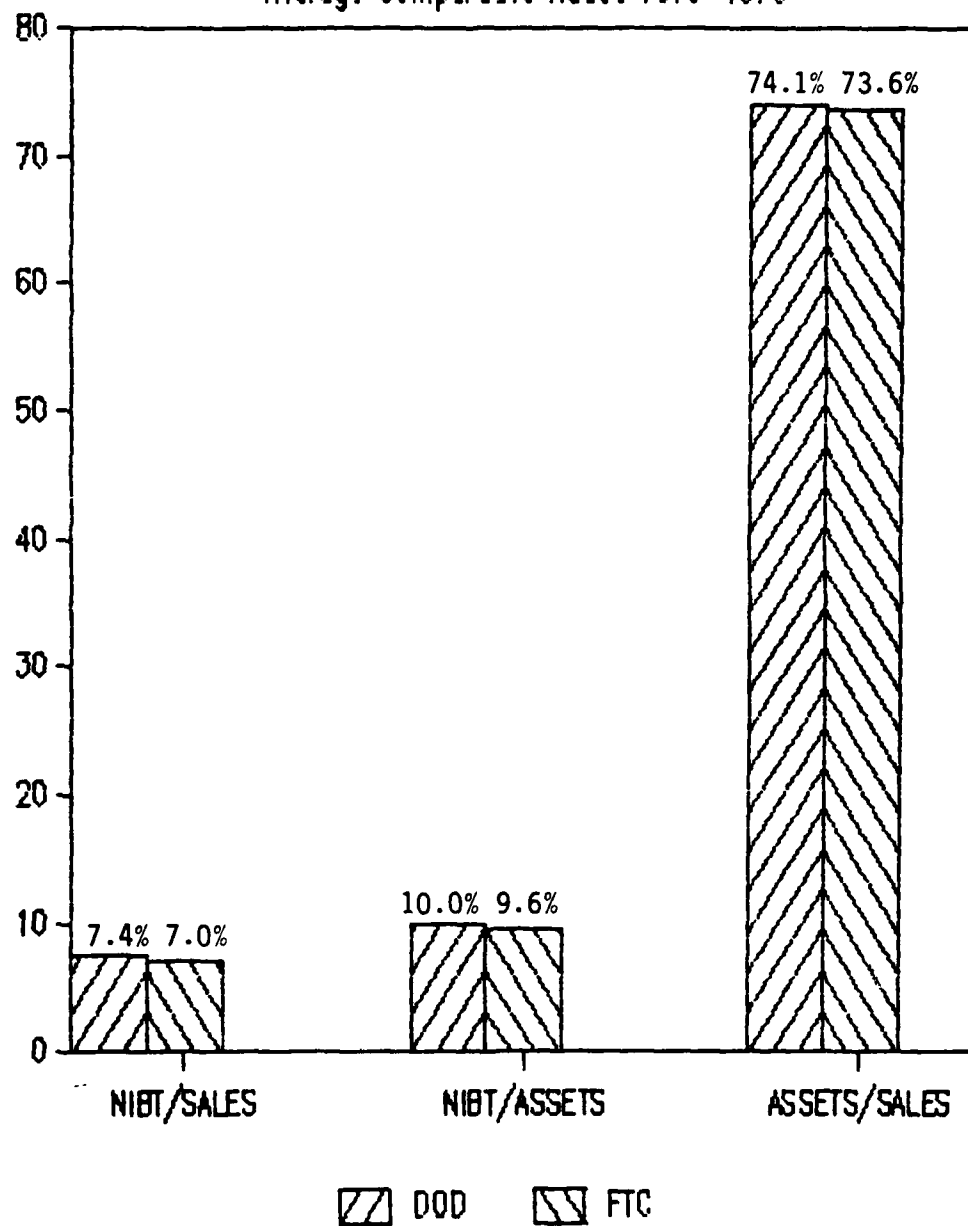


Figure 7.

Comparing these averages with the averages established by the Profit '76 report for the government profit centers and the Federal Trade Commission durable goods producers (see Figure 8), indicates the DOD contracting companies performed much the same as the Federal Trade Commission durable goods producers. That is their investment and financial performances were better than those of the government profit centers, with the exception of the net income before taxes to assets. This exception was explained previously by the government profit center's lack of increasing their investments.

It should be noted that differences in the net income before taxes to total assets and the total assets to sales between the two data sources can be attributed to the fact that Profit '76 was able to determine what the progress payments were for the government profit centers and for the Federal Trade Commission durable goods producers. These progress payments were then deducted from their total assets. However, the information provided in the Quarterly Financial Report, published by the Federal Trade Commission, and the information taken from the Standard & Poors Stock Reports did not breakout specific details regarding progress payments. Therefore, this study was not able to incorporate such amendments.

In conclusion, it appeared there was a strong correlation between the Federal Trade Commission durable goods producers high ratio of realized profit before taxes to sales and their high ratio of total assets to sales. The desire of the Profit '76 study team was to produce similar high ratios for the government profit centers. Their resulting recommendation was to revise the profit policy to provide a higher return on sales and, therefore, stimulate capital investment which would then produce lower unit costs.

Providing for a higher return on sales meant that the government wanted to increase the contractor's percentage of net income before taxes to sales. Or more simply stated, the government wanted to implement methods which would provide for costs to be a lower percentage of sales, which meant encouraging capital investments. The medium chosen for implementing this was the Weighted Guidelines profit policy, since the high return on sales of the Federal Trade Commission durable goods producers was strongly associated with their high assets to sales.

Profit '76 Average Ratios 1970-1974

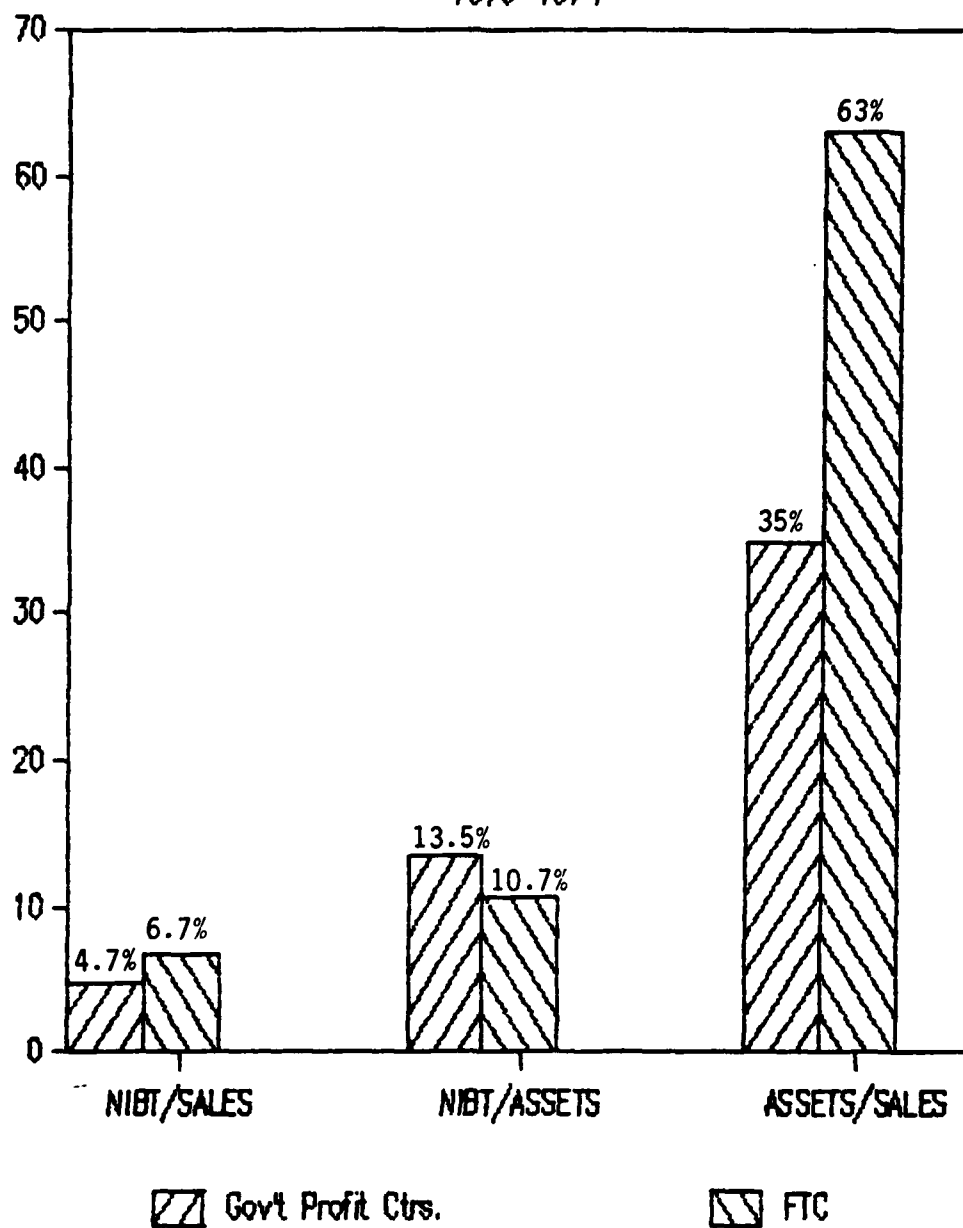


Figure 8. Source: Profit '76 Summary Report

Defense Procurement Circular (DPC) 76-3

The actual revisions to the Weighted Guidelines were published within DPC 76-3 in September 1976. The following changes were made:

- 1) A new factor, Contractor Investment in Facilities Capital, was added to the Weighted Guidelines and its goal was to represent 10% of the profit. The purpose of this addition was to permit contractors to recognize the investment risk associated with their facilities employed. The greater the amount of the investment risk, the greater the amount of the profit would be.
- 2) The goal for the profit factor of Contractor Cost Risk was increased from 30% to 40%. The intent was to increase the reward given to contractors who take on a greater part of the contract cost risk.
- 3) A new Special Productivity Factor was added to the Weighted Guidelines. This new factor was added to recapture any lost profits caused by a productivity increase which might lower a cost base. However, the following specified criteria had to be followed: must involve a follow-on contract; reliable cost data should be available; and configuration changes cannot obscure cost comparisons.
- 4) Contractor Effort emphasis was reduced from the goal of 65% to 50% of the distribution of profit. This decrease was necessary to offset the increases in Contractor Cost Risk, the creation of Contractor Investment in Facilities Capital, and the addition of the Special Productivity Factor. The decrease was facilitated by reducing the Contractor Effort subtotal profit/fee by 30%. If the decrease in Contractor Effort had not been made, a higher profit would have resulted and therefore a higher contract price to the government.

- 5) The cost of money facilities capital was shifted from being considered profit to being recognized as a contract cost under Cost Accounting Standard 414.

These changes and additions of the factors in the Weighted Guidelines were implemented to incentivize capital investment. However, the incentives presented did not appear to sufficiently reward contractors for their cost reducing efforts. That is, the profit range remained basically the same with the exception of the addition of the Special Productivity factor with its limited applicability.

With the emphasis on cost based pricing for government contracts, any cost reductions implemented would result in lower costs to the contractor and lower profits as well since profit is determined as a percentage of costs. Therefore the only direct result contractors could expect from capital improvement investments was reduced profits.

Relating this to the investment model through a typical example will help illustrate how commercial contractors would be affected by these profit policy efforts.

The tactical level, being the most familiar with the need to replace aged machinery and the most able to identify areas where cost reductions can be made, generates an equipment investment proposal for an ongoing defense contract which will reduce direct labor and total cost. The tactical level then determines that the proposal has the potential to meet the corporate guidelines for return on investment. However, when evaluating the proposal's contribution to profit, they found because the proposal was for a defense contract, the contribution to profit normally associated with reducing costs would not be attained. The reason for this was that with the cost-based pricing used for defense contracts, cost reductions achieved in the performance of production program often do not result in additions to the contractor profit, they only result in lower prices to the government. Thus the tactical level decides against implementing the proposal for investing in the cost reducing equipment.

Even if the proposal had been referred to the operational level, based upon the business portfolio matrix of the corporation, it is doubtful it would have been approved. That is, the defense product line generally experiences low growth and the market share is not cost sensitive. Generally, increases in market share are obtained by technology advancement rather than cost reduction.

In conclusion, the changes made in DPC 76-3 did not appear to induce government profit centers to invest in cost reducing facilities or equipment. The use of cost-based pricing made any efforts by government profit centers to invest in cost reducing facilities or equipment, beneficial only to the government through lower priced contracts. Government profit centers were still not able to recover the potential bottom line increases in profits which could have been created with productivity improvements.

VI. INVESTMENT AND FINANCIAL TRENDS, 1978-1979

The intentions of the profit policy changes, published in DPC 76-3, were made to better reward capital investments by changing the distribution of the profit factors. The Contractor Effort section was reduced to represent 50% of profit, down from 65%. The goal of the Contractor Risk section was established as 40% of the profit, up from 30%. The Facilities Investment section was created, and its goal was to derive 10% of the profit.

By utilizing the DD Form 1499 data base, we were able to determine the distribution of these profit factors as a percentage of the total profit objective. The goal versus the actual distribution of the profit factors Contractor Effort, Contractor Risk, and Facilities Investment for the years 1978 and 1979 are shown in Figure 9.

The DD 1499 data base is a collection of all U.S. Air Force, Army, and Navy DD Form 1499s. A blank form is shown in Figure 10. The DD Form 1499 is a restatement of the profit/fee objective taken directly from the DD Form 1547, along with the negotiation summary of the contractor objective, the government objective, and the final negotiated dollars.

It should be understood that the DD Form 1499, Report of Individual Contract Profit, is only prepared by the following contracting offices:

1. Army Materiel Development and Readiness Command, Ballistic Missile Defense Systems Command, Defense Supply Service, Washington, and U.S. Army Corps of Engineers;
2. Air Force Logistics and Systems Commands; and

Weighted Guidelines Profit Factors

Goal Versus Actual, 1978-1979

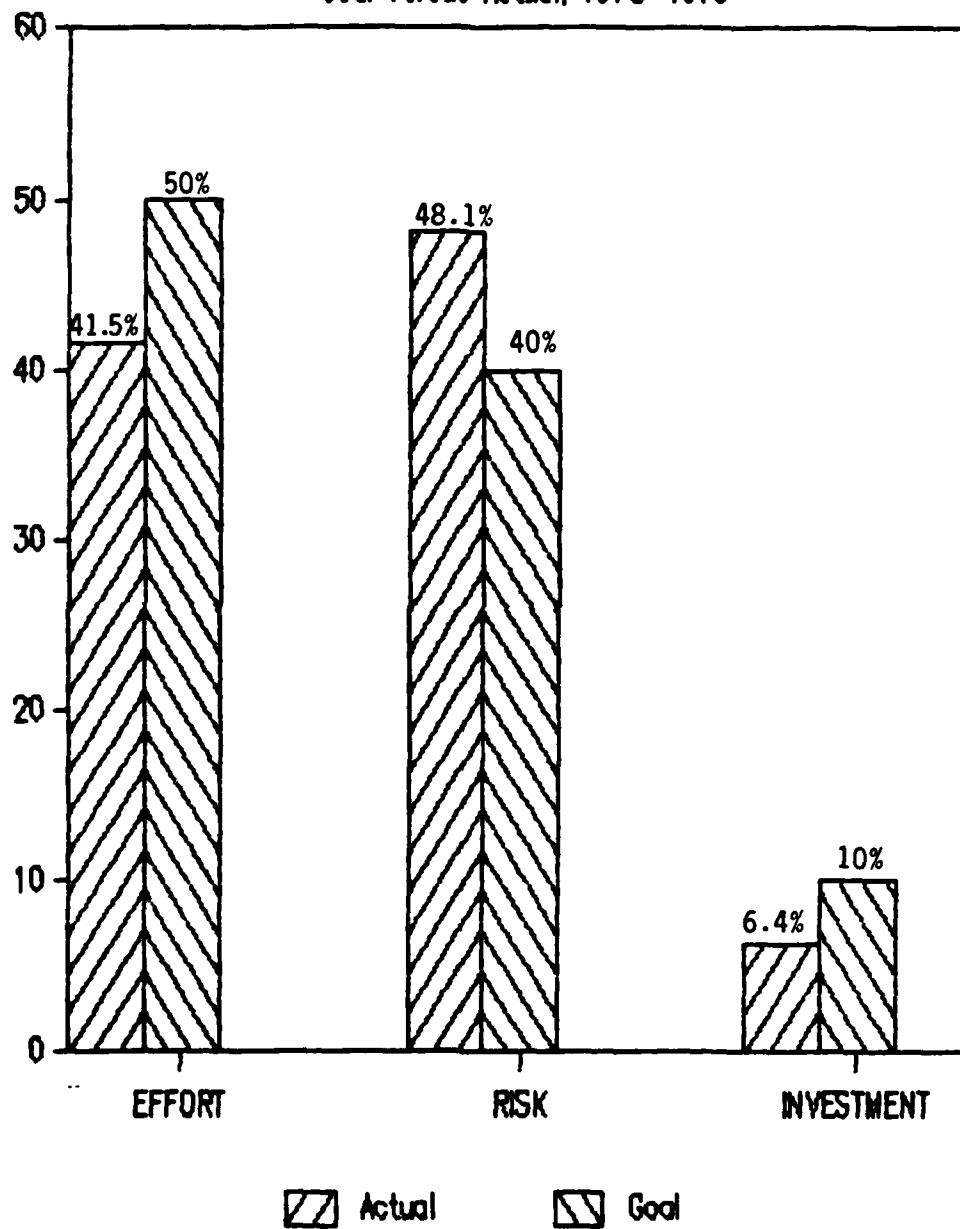


Figure 9.

REPORT OF INDIVIDUAL CONTRACT PROFIT PLAN							DOD COMPONENT	
1. REPORT NO.	2. BASIC PROCUREMENT INSTRUMENT IDENTIFICATION NO.				3. SP11N	4. DATE OF ACTION YEAR MONTH		
	a. PURCHASING OFFICE	b. FY	c. YY-PROC-INSTR CODE					d. PRISM
5. PURCHASING OFFICE NAME						ITEM 5 CODE		
6. TYPE OF PRICING ACTION A INITIAL AWARD B SUBSEQUENT NEGOTIATION OF COST/PROFIT						ITEM 6 CODE		
7. CONTRACTOR IDENTIFICATION	a. COMPANY NAME			b. DIVISION NAME (if any)		ITEM 7 CODE		
	c. STREET ADDRESS		d. CITY	e. STATE	f. ZIP CODE			
8. PRINCIPAL PLACE OF PERFORMANCE		a. CITY		b. STATE		ITEM 8 CODE CITY STATE		
9. FEDERAL SUPPLY CLASS OR SERVICE						ITEM 9 CODE		
10. DOD CLAIMANT PROGRAM						ITEM 10 CODE		
11. WEIGHTED GUIDELINES CATEGORY A MANUFACTURING B RESEARCH AND DEVELOPMENT C SERVICES D WEIGHTED GUIDELINES NOT USED						ITEM 11 CODE		
12. TYPE OF CONTRACT (Reference DAB, Section III, Part 4) A - FPR (All types) J - FPP K - FP (B) L - FPI (All types) R - CPAP U - CPFF V - CPIF (All types)						ITEM 12 CODE		
13. NEGOTIATION SUMMARY		CONTRACTOR		OBJECTIVE		NEGOTIATED		
a. SUBTOTAL COST								
b. COST OF MONEY (DD Form 1861)								
c. TOTAL COST								
d. PROFIT OR FEE								
e. TOTAL PRICE								
f. CEILING PRICE (if applicable)								
g. COST OF MONEY RATE (DD Form 1861)								
14. WEIGHTED GUIDELINES PROFIT FACTORS (DD Form 1861)				MEASUREMENT BASE		PROFIT/FEE DOLLARS		
a. CONTRACTOR EFFORT								
(1) MATERIAL ACQUISITION								
(2) ENGINEERING - DIRECT LABOR								
(3) ENGINEERING - OVERHEAD								
(4) MANUFACTURING - DIRECT LABOR								
(5) MANUFACTURING - OVERHEAD								
(6) SERVICES - DIRECT LABOR								
(7) SERVICES - OVERHEAD								
(8) OTHER COSTS								
(9) GENERAL MANAGEMENT - G & A								
(10) PROFIT/FEE SUBTOTAL								
(11) MANUFACTURING GUIDELINES ADJUSTMENT								
(12) TOTAL EFFORT								
b. CONTRACTOR COST RISK								
c. FACILITIES CAPITAL EMPLOYED								
d. SPECIAL PROFIT/FEE OBJECTIVE								
(1) PRODUCTIVITY								
(2) INDEPENDENT DEVELOPMENT								
(3) OTHER								
e. PROFIT/FEE SUBTOTAL								
f. COST OF MONEY ADJUSTMENT								
g. TOTAL PROFIT/FEE OBJECTIVE								
15. DATE SUBMITTED (Yr, Mo, Day)		16a. TYPED NAME OF CONTRACTING OFFICER OR REPRESENTATIVE (Last, First, MI)		16. SIGNATURE OF CONTRACTING OFFICER OR REPRESENTATIVE		17. TELEPHONE EXTENSION		

DD FORM 1499
1 JAN 66

PREVIOUS EDITIONS ARE OBSOLETE.

Figure 10

3. Naval Air, Sea, and Electronic Systems Commands, Naval Facilities Engineering Command, Naval Regional Contracting Office, Philadelphia. The Form is also prepared by the following Navy activities of the Naval Supply Systems Command: Navy Aviation Supply Office, Philadelphia; Navy Ships Parts Control Center, Mechanicsburg; and Naval Regional Contracting Office, Long Beach. Contracting offices located outside the United States, its possessions, and Puerto Rico, under the jurisdiction of the above-mentioned commands, are exempt from this reporting requirement.

Furthermore, the DD Form 1499 is prepared for each negotiation of a contractual agreement involving a separate cost and profit that together total \$500,000 or more.

Referring back to the distribution of the profit factors, the average actual Contractor Effort factor as a percentage of total profit objective for the years 1978 and 1979 was 41.5%, or 8.5% below its goal. The profit within this section was weighted down considerably by the lower percentage profit objectives, an average of 38%, which were given to the manufacturing-type contracts.

The average actual Contractor Risk factor as a percentage of total profit objective for the years 1978 and 1979 was 48.1%, or 8.1% above its goal. The reason for this was the higher percentage profit objectives, an average of 52%, which were given to the manufacturing-type contracts.

The average actual Facilities Investment factor as a percentage of total profit objective for the years 1978 and 1979 was 6.4%, or 3.6% below its goal. Research and development contract's Facilities Investment factor represented an average 7.3% of their profit objective, service contract's Facilities Investment factor had an average 7.8% of their profit objective, and manufacturing contract's Facilities Investment factor claimed an average 6.1% of the

objective profit. In summary, all type contracts were below their desired goal for the Facilities Investment profit factor. An important point should be made here. Through DPC 76-3 the Facilities Investment factor was created specifically to permit contractors to recognize the investment risk associated with their facilities employed. The greater the amount of the investment risk, the greater the amount of profit. Since this profit factor was below its goal, this indicates that increases in Facilities Investment did not occur to the extent they were hoped to have.

By using the DD Form 1499 data base, we were able to determine the average negotiated profit before taxes to sales for defense contracts during the years 1978 and 1979 to be 9.8%. This was one percent higher than the average negotiated profit before taxes to sales, 8.8%, for the earlier years 1970-1974 (see Figure 11).

The average realized profit before taxes to sales was calculated, using the DOD contracting company data base, for the years 1978 and 1979. The DOD contracting companies were able to improve their performance 23%, bringing the ratio from an average 7.4% during the years 1973-1975 to an average 9.1% for the years 1978 and 1979. The Federal Trade Commission durable goods producers average realized profit before taxes to sales was determined to be 7.6% for the years 1978 and 1979, up from 7.0% during the years 1973 through 1975. The Federal Trade Commission durable goods producers were only able to increase their net income before taxes to sales by 9%.

The average realized profit before taxes to assets for DOD contracting companies during 1978 and 1979 was 12.7%, a 27% increase from the previous average in 1973 through 1975. The Federal Trade Commission durable goods producers attained an average realized profit before taxes to assets of 11.1% for the years 1978 and 1979, a 16% increase from the preceding average for the years 1973 through 1975.

Government Profit Centers

Avg. Neg. Profit Before Taxes/Sales

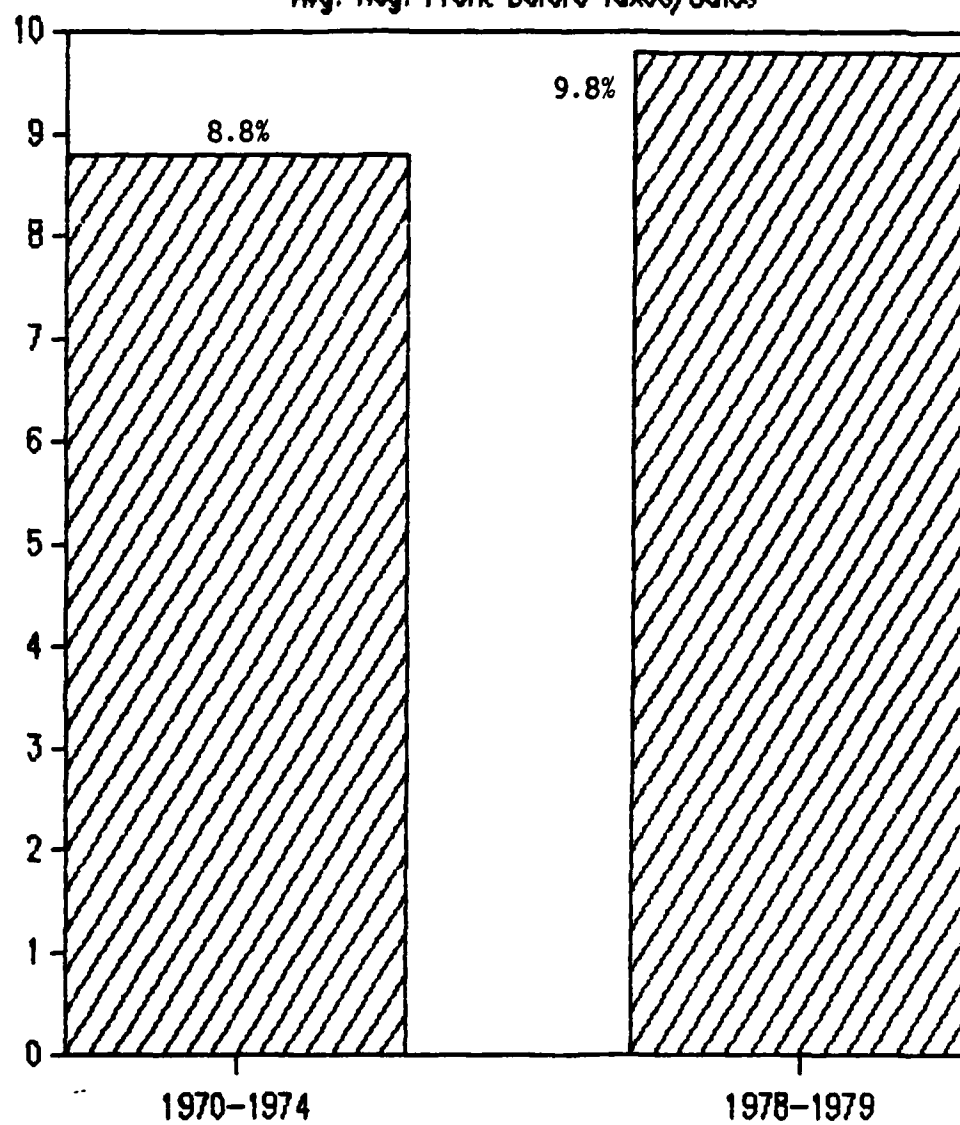


Figure 11.

The average total assets to sales for DOD contracting companies, 1978 and 1979, was 71.6%, a 3% decrease from the 74.1% average for the years 1973 through 1975. The average total assets to sales for Federal Trade Commission durable goods producers was 68.5%, a 7% decrease from the prior average for the years 1973 through 1975 (see Figure 12).

The 23% increase in the DOD contracting companies realized net income before taxes to sales was due to their 119% increase in average net income before taxes and their 78% increase in average net sales. In other words, the DOD contracting companies were able to increase their net income before taxes at a faster rate than they increased their sales.

This meant the DOD contracting companies were doing a good job of controlling their operating expenses and cost of goods sold. Their average operating expenses and cost of goods sold expressed as a percentage of sales decreased from 93% for the years 1973 through 1975 to 91% for the years 1978 and 1979. This decrease in operating expenses and cost of goods sold may be attributed partially to the DOD contracting companies' 72% increase in their average total assets from the years 1973 through 1975 to the years 1978 and 1979.

In comparison, the Federal Trade Commission durable goods producers average realized profit before taxes to sales increased 9%. Their increase in average net income before taxes was 67%, and their increase in average sales was 54%. Their average net income before taxes was increasing at a faster rate than their average sales were, however not nearly as fast as the DOD contracting companies.

The Federal Trade Commission durable goods producers average operating expenses and cost of goods sold expressed as a percentage of sales also decreased for the years 1973 through 1975 to 1978 and 1979, but only from 93% down to 92%. Their average total assets increased 44%, from 1973-1975 to 1978 to 1979.

Financial Database

Average Comparative Ratios 1978-1979

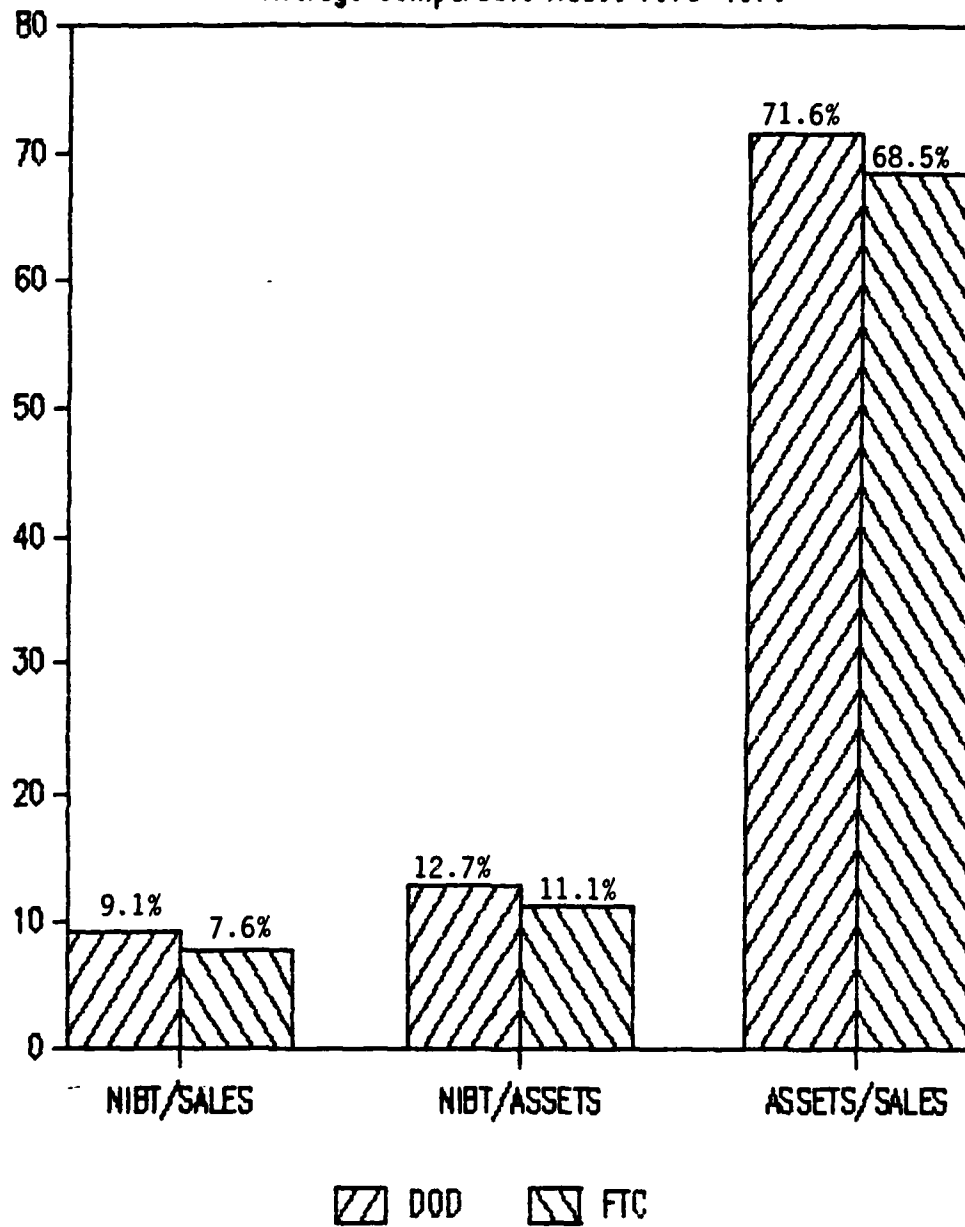


Figure 12.

Concluding, there were observable differences in the financial performances between the DOD contracting companies and the Federal Trade Commission durable goods producers. The DOD contracting companies out performed the Federal Trade Commission durable goods producers with their net income before taxes to sales, net income before taxes to assets, and assets to sales for 1978-1979. They were also able to decrease their operating expenses and cost of goods sold to sales twice as much as the Federal Trade Commission durable good producers did.

In order to compare the financial performance of the government profit centers during this period, we administered a survey to various government profit centers. Within the survey the government profit centers were asked to provide the following information: net book value of capital facilities and equipment; business volume (cost basis) of the profit centers; percent of the cost basis provided by the DOD. The percentage of profit centers responding to the survey with useable data was approximately 10%. The findings of the survey were that the business volume (cost basis) of the profit centers increased an average 26% from 1976-1977 to 1978-1979. Even though the business volume (cost basis) of the profit centers increased, the average percent of the cost provided by the DOD decreased from 68% in 1976-1977 to 66% in 1978-1979. Furthermore, the net book value of the profit center's facilities and equipment increased an average 27% from 1976-1977 to 1978-1979.

Even though the net book value of the profit centers' facilities and equipment increased 27%, the ratio of their facilities and equipment to costs remained at a constant 8.4% from 1976-1977 to 1978-1979. This indicated that the government profit centers were willing to increase their facilities and equipment base, but only to the extent that their cost basis would increase by the same percentage. By doing so they were able to maintain the same percentage of profit.

Thus with the percent of the cost basis provided by the DOD to the government profit centers decreasing, their ratio of facilities and equipment to costs remaining the same, and the negotiated pre-tax profit to sales increasing one percent, the profit policies of the DOD did not appear to be adequately

incentivizing government contractors to invest in cost reducing facilities. Rather, the profit policies appeared to motivate contractors to increase their facilities and equipment so as to maintain an equivalent cost basis, resulting in an unchanging profit basis.

Relating these findings to the Investment Model, the tactical level of the government profit centers remained to be apprehensive of recommending suggestions for investments in cost reducing facilities and equipment for their defense product lines. With the emphasis still being placed on cost-based pricing, and the profit allowance for investment not reaching its goals, any investments in cost reducing facilities and equipment for the defense product lines appeared to benefit only the government. Therefore, the only investments which the tactical level would implement or recommend implementing would be those that would maintain the defense product line level of profit.

Thus the government profit policy, altered by DPC 76-3 did not invite government profit centers to act as the Federal Trade Commission durable goods producers and invest in cost reducing facilities. Rather, the government profit policies motivated government profit centers to invest in facilities and equipment which would sustain their cost basis and their profits. Government profit centers avoided investments which would tend to lower their cost basis, which in turn would lower their profit.

VII. INVESTMENT AND FINANCIAL TRENDS, 1980-1982

Defense Acquisition Circular (DAC) 76-23

Based upon an analysis of practical experience with DPC 76-3, the Weighted Guidelines profit policy was revised again. The analysis of practical experience with DPC 76-3, based upon various studies and DOD conclusions, disclosed four problems:

- 1) The return on investment is not adequate to be a positive motivator for contractors to increase their facilities investment;
- 2) Policy guidance for assigning weight to contract cost risk factor is not sufficient;
- 3) There are too many exceptions to a manufacturing oriented policy;
- 4) Treating profit for research and development and service profit levels in the same manner is not desirable.

Consequently, in February 1980, three revisions were made to the Weighted Guidelines profit policy designed to correct these problems.

First, to correct the problem of inadequate return on investment, the weight for the Facilities Investment was increased from 6-10% to 16-20%. There was no change made in the 30% offsetting factor within the Contractor Effort factor to negate this increase in profit.

Second, because an investment oriented profit policy was not applicable to research and development and service contracts, separate profit ranges were constructed for manufacturing, research and development, and service contracts.

Third, in order to correct the insufficient guidance for assigning the weight for the Contractor Risk, separate weights were provided for manufacturing, research and development, and service contracts.

The desired redistribution of the profit factors as a percentage of total profit objective was to change the previous 50% goal for Contractor Effort to 46%; Contractor Risk was desired to represent 37%, down from 40%; Facilities Investment was to represent 17%, up from 10%. In summary, the main objective of DAC 76-23 was the same as DPC 76-3, to achieve cost reductions through increased capital investment.

Using the DD Form 1499 data base, we determined the distribution of the profit factors as a percentage of total profit objective for the years 1980 through the latest available year, 1982. Contractor Effort represented 45% of the total profit objective, close to its goal of 46%. Contractor Risk stood for 41% of the total profit objective, above its goal of 37%. Again manufacturing contracts helped to bring this factor above its goal by attaining 48% of the total profit objective. The Facilities Investment factor represented 12% of the total profit objective, 5% less than its goal. Again, none of the contract types came close to meeting the 17% goal. Research and development contract's total profit objective contained only 9% Facilities Investment, service contract's total profit objective consisted of 9% Facilities Investment, and manufacturing contracts total profit objective had 13% Facilities Investment (see Figure 13).

By utilizing the DD Form 1499 data base, the average negotiated profit before taxes to sales during the years 1980-1982 was determined to be 9.6%. The average negotiated profit before taxes to sales dropped .2% from the years 1978-1979 to 1980-1982 (see Figure 14).

Using the DOD contracting company data base, their average realized profit before taxes to sales was determined to be 5.9%, down from 9.1% during the years 1978-1979. The average was weighted down because the DOD contracting company's average net income before taxes decreased by 22% and their sales increased by 20%. The Federal Trade Commission durable goods producers average

Weighted Guidelines Profit Factors

Goal Versus Actual, 1980-1982

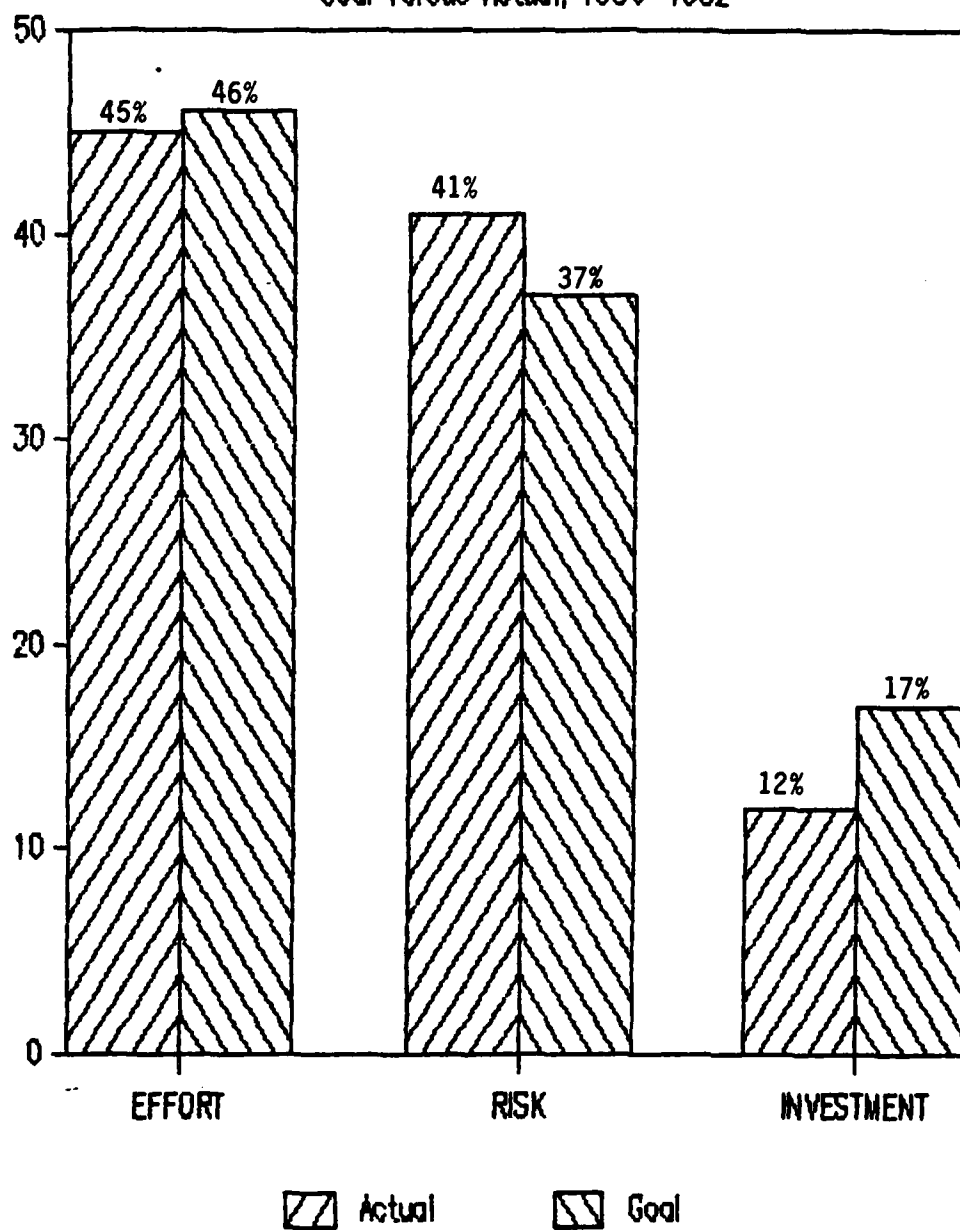


Figure 13.

Government Profit Centers

Avg. Neg. Profit Before Taxes/Sales

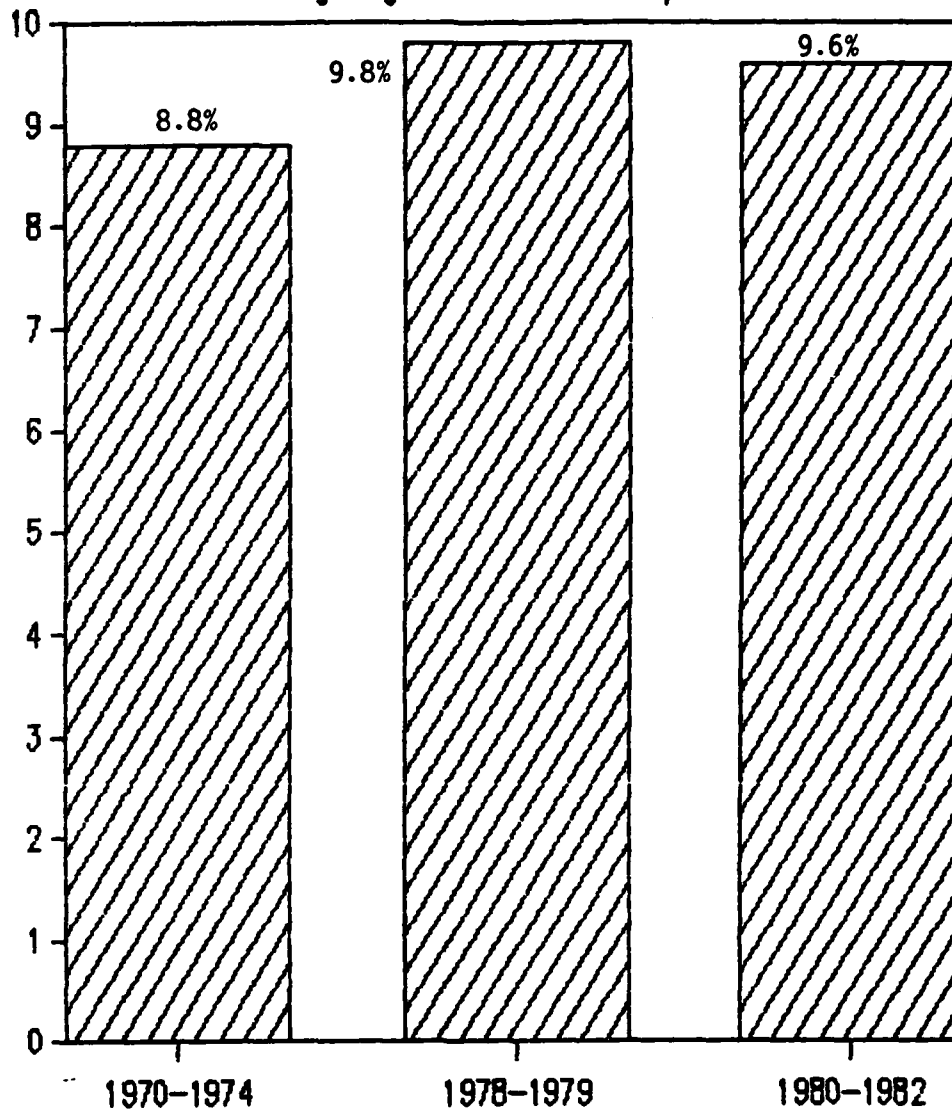


Figure 14.

net income before taxes to sales went from 7.6% in 1978-1979 to 5.4% in 1980-1982. Their average net income before taxes decreased by 20%, and their average sales increased by 14%.

The average realized profit before taxes to assets for the DOD contracting companies during 1980-1982 was 7.7%, down from the previous 12.7% during 1978-1979. This deterioration was due to their 22% decrease in net income before taxes and 28% increase in assets. The Federal Trade Commission durable goods producers average net income before taxes to assets went from 11.1% in 1978-1979 to 6.9% in 1980-1982. Their shrinking average net income before taxes to assets was contributed to by their 20% decrease in net income before taxes and by their 29% increase in assets.

The average total assets to sales for the DOD contracting companies between 1980-1982 was 75.9%, a 4.3% increase from 1978-1979. This was caused by a 28% increase in assets compared to a 20% increase in sales. The Federal Trade Commission durable goods producers were also able to raise their assets to sales from an average 68.5% in 1978-1979, to an average 77.7% in 1980-1982. This was due to their 29% increase in assets matched by their 14% increase in sales (see Figure 15).

With sales increasing at slower rates than in the past and net income before taxes decreasing rather than increasing, the cost of goods sold and operating expenses for both DOD contracting companies and Federal Trade Commission durable goods producers was increasing faster than sales were. This was due to periods of high inflation during which many companies built inventories. During this period of high inflation and high interest rates, additions to assets were slowed down considerably as evidenced by the figures presented previously.

Interjecting the findings of our survey of various government profit centers, we found that their average business volume (cost basis) had increased 65% from 1978-1979. Their net book value of facilities and equipment increased by 103%, and the percentage of the cost basis provided by the DOD decreased from 66% in 1978-1979 to 63% in 1980-1982.

Financial Database

Average Comparative Ratios 1980-1982

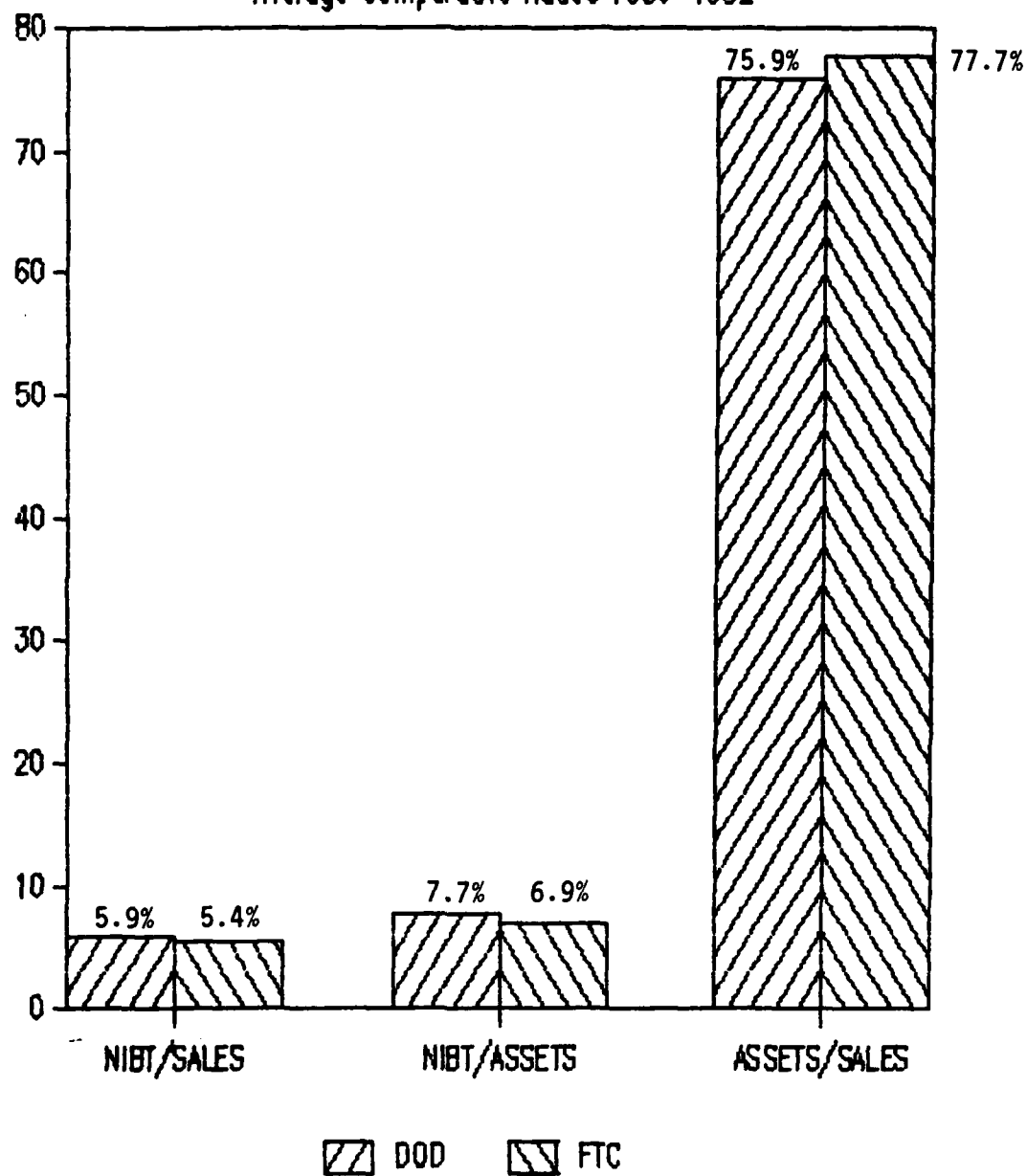


Figure 15.

To understand this 103% increase in their net book value of facilities and equipment, we again looked at the ratio of the net book value of the facilities and equipment to the business volume (cost basis) of the government profit centers surveyed. This ratio increased from 8.4% in 1978-1979 to 10.3% in 1980-1982.

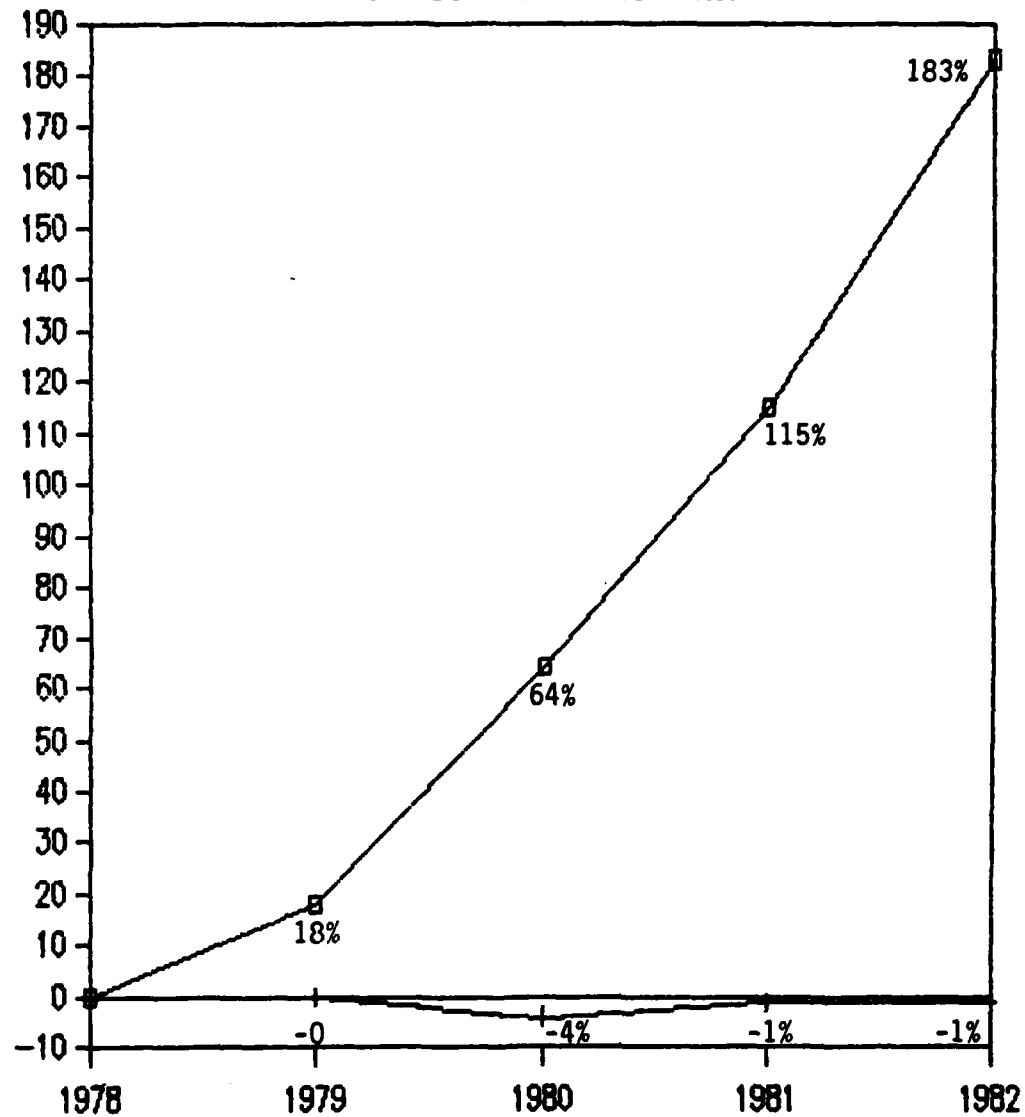
We would expect, in the long-run, as productivity improving facilities and equipment are placed in service, that costs should decrease and the ratio of the net book value of facilities and equipment to costs would increase. Since in this case the government profit centers facilities and equipment to costs was increasing, the indications were that their additions to facilities and equipment were starting to return reduced costs.

It is, however, uncertain that the profit policies of the DOD were responsible for the increase in the government profit center's facilities and equipment to costs. That is, the percentage of the negotiated profit before taxes to sales for the government profit centers remained basically flat and the Facilities Investment profit factor was below its goal, yet their ratio of facilities and equipment to costs was increasing. It is our perception that forces (which are identified later in this section), external to the DOD profit policies, were causing these increases in cost reducing facilities and equipment for the government profit centers.

To further illustrate this point, we plotted the trends of the growth in facilities and equipment versus the trend of the growth in the negotiated profit before taxes to sales for the government profit centers. We established 1978 as the base year, and for each year the increase or decrease was computed as a percentage change from the base year. Figure 16 illustrates that while the negotiated profit before taxes to sales for the government profit centers was decreasing, the net book value of their facilities and equipment was increasing. Thus with the declining negotiated profit before taxes to sales and an increase of net book value of facilities and equipment, the DOD profit policies did not appear to be the reason why the government profit centers were investing in facilities and equipment.

Government Profit Centers

1978 Base Year Growth Rates



□ NBV For Equipment

+ Neg. Prof. Bef. T/S

Figure 16.

To validate this, we compared results of a 1980 survey, administered by LTC Douglas H. Diamond and Major Robert J. Cantin which was used in their study on the Calculation of Profit on Negotiated Profits, to the results of a similar survey which we administered in 1983 (see Appendix B for a copy of our survey sheet). The 1980 and 1983 surveys were given to various corporations who had business commitments with the DOD. We found that the same conceptions concerning the government profit policies still prevailed. Most importantly the corporations surveyed did not, before nor after, consider the DOD profit policies adequate incentives to encourage a significant level of corporate investment in cost reducing facilities or equipment (Question 1) and the corporations surveyed did not, before nor after, feel that they had been adequately rewarded by increased profit for past expenditures on capital equipment (Question 6).

In addition to the survey administered to the various corporations concerning the adequacy of the government profit policies to induce investments in cost reducing facilities and equipment, we also contacted representatives from each branch of the services (see Appendix C for a listing of the contacts) and questioned them on their recent and past experiences with the Weighted Guidelines and how they perceived the Weighted Guideline's ability to induce contractors to invest in cost reducing facilities and equipment. We found the contacts all felt (based upon their experience and exposure to Weighted Guidelines) Weighted Guidelines was not and still is not an effective tool with which to invite contractors to invest in cost reducing facilities or equipment.

It is our perception that the driving force behind the government profit center's increase in facilities and equipment to costs ratios, is the enactment of the tax legislation in 1981. The tax legislation is the Accelerated Cost Reduction Reduction System (ACRS) for personal property which allowed accelerated methods for recovery of capital costs for most depreciable property. This was evidenced by the fact that during the 1980-1982 time period the assets for both the DOD contracting companies and the Federal Trade Commission durable goods producers were increasing at a faster rate than their sales were. Whereas during the previous time period, 1978-1979, sales were increasing faster than their assets.

It is also our perception that another important contribution to the increase in the facilities and equipment of the government profit centers are the special programs which have been introduced to government contractors. A few examples of the programs are the Industrial Modernization Incentives Program (IMIP) and the Technology Modernization Program (TECH MOD). These programs permit the contractor as well as the government to share in the benefits of investing in cost reducing facilities or equipment. From our contacts with the members of the services we gathered that they all were very encouraged by the results of these programs and they felt they created a win-win situation for the contractor and the government, something that Weighted Guidelines did not have the capability of doing.

Relating these findings to the Investment Model, the government profit centers were beginning to realize the benefits of some of the newly enacted incentives to invest in cost reducing facilities and equipment. The tactical level of the organization began to freely and not apprehensively recommend ideas where high productivity improvements could be made, now that they understood their organization had something to benefit from doing so. The operational level and the strategic level began to think in terms of reassessing the strategic positioning of their defense product within their business portfolio matrix.

In conclusion, the Weighted Guidelines profit policy, in and of itself, did not appear capable of stimulating government contractors to invest in cost reducing facilities. With the use of cost-based pricing techniques, the Weighted Guidelines profit policy only encouraged contractors to invest in the lowest productivity gains. It is our perception that through the newly enacted tax legislation and the implementation of shared savings programs, government contractors are able to improve their productivity without negatively impacting profitability.

VIII. FINDINGS AND RECOMMENDATIONS

Within this report we examined the effectiveness of the Weighted Guidelines profit policy to induce government contractors to invest in cost reducing facilities and equipment. We identified, through the use of the Investment Model, how government contractors reacted to the Weighted Guidelines profit policy goal of increasing capital investments. Most importantly, we found the Weighted Guidelines profit policy, through the use of cost-based pricing, did not permit government contractors to receive the benefits from investing in cost reducing facilities and equipment. The detailed findings and recommendations of our study are presented below.

FINDINGS

Finding 1: Neither DPC 76-3 Nor DAC 76-23 Induced Capital Investments in Cost Reducing Facilities and Equipment

The goal of DPC 76-3 was to provide for a higher return on sales for government contractors, which would in turn stimulate capital investments. The desired result was to produce lower program costs. However upon examining the increases in the net book value of facilities and equipment to costs of government profit centers, we found the ratio remained the same between 1976-1977 to 1978-1979. With the use of cost-based pricing, investments in facilities and equipment were being made but only at the rate necessary to maintain the same proportionate cost basis.

The goal of DAC 76-23 was the same as DPC 76-3, to induce government contractors to invest in cost reducing facilities and equipment. Sizeable increases in the government contractors' facilities and equipment were being made, at faster rates than their costs were increasing, which indicated cost reductions were being realized through these investments. However, at the same time the percentage of costs provided by the DOD to these government profit centers was decreasing. Combining this with the fact that cost based pricing was

still being used, and that the ratio of average negotiated profit to sales remained basically the same, indicated that the percentage of the profits provided by the DOD to these profit centers was also decreasing. The Weighted Guidelines profit policy could not be given credit for this increase of the government profit centers net book value of facilities and equipment to costs.

Finding 2: Programs External to the Weighted Guideline Profit Policy Induced Government Profit Centers to Invest in Cost Reducing Facilities and Equipment

New tax legislation which was enacted to permit accelerated methods for recovery of capital costs for most depreciable property was thought to have been the primary force behind the addition of assets for the Federal Trade Commission durable goods producers, the DOD contracting companies, and the government profit centers. Even during the times of high inflation their assets grew at faster rates than their sales. Another driving force behind the additions to assets of the government profit centers were the special programs such as IMIP and TECH MOD, which permitted government contractors to benefit in the investment of cost reducing facilities or equipment.

RECOMMENDATIONS

Recommendation 1: DOD Should Continue the Use of the Weighted Guidelines Profit Policy, However it Should Not be Used as a Method for Inducing Cost Reducing Facilities

The Weighted Guidelines approach is a sound approach in determining the profit on defense contracts, it is, however, not a good method with which to motivate contractors to invest in cost reducing facilities and equipment. The Weighted Guidelines does not invite defense contractors to invest in cost reducing facilities because it is founded upon the concept of cost-based pricing. With the use of cost-based pricing, any cost reducing investments tend to reduce the contractor costs and thus contractor profits.

Recommendation 2: The ACRS Deduction and the Shared Savings Programs Should be Maintained

It was not until the enactment of the ACRS deduction and the following enactment of the shared savings programs that government profit centers began to invest in cost reducing facilities and equipment. Prior to their implementation, government profit centers increases in facilities and equipment were equal to their increases in costs, which meant they did not reduce their costs and likewise their profits remained basically flat. However, with the new tax legislation and the shared savings programs the government profit centers are able to benefit from a win-win situation, which is necessary for the survival and revival of the industrial defense base.

BIBLIOGRAPHY

Explanation of Tax Equity and Fiscal Responsibility Act of 1982, Commerce Clearing House, Incorporated.

Strayer, Daniel E., "A Conceptual Model of the Capital Budgeting and Strategic Investment Decision System Used in U.S. Corporations and its Implications for U.S. Department of Defense Profit Policy."

Profit Study '82 Summary Report, Air Force Systems Command, DCS/Contracting and Manufacturing, Andrews Air Force Base, Maryland.

Standard & Poor's Stock Reports, New York Stock Exchange, Standard & Poor's Corporation, 1984.

100 Companies Receiving the Largest Dollar Volume of Prime Contract Awards, Fiscal Year 1982. OSD Washington Headquarters Services, 1982.

Quarterly Financial Report for Manufacturing, Mining and Trade Corporations, Federal Trade Commission 1973-1982.

Diamond, Douglas H., LTC, USAF, Res. and Robert, J. Cantin, Major, USAF, Res., Calculation of Profit On Negotiated Contracts, United States Air Force, Aeronautical Systems Division, Dayton, Ohio, November 1981.

Comptroller General of the United States, Letter to the Secretary of Defense, "GAO Review of Profit '76," PSAD-77-75, 17 February 1977.

Office of the Assistant Secretary of Defense (Installations and Logistics), Profit '76 Summary Report, Washington, DC.

U.S. Department of Defense, Defense Procurement Circular, No. 76-3, Washington, DC: Government Printing Office, September 1976.

U.S. Department of Defense, Defense Acquisition Circular, No. 76-23, Washington, DC: Government Printing Office, February 1980.

APPENDIX A

DEFENSE CONTRACTOR DATA BASE

American Motors	Lockheed
AVCO	Martin-Marietta
Boeing	McDonnell-Douglas
Burroughs	Morrison Knudsen
CDC	Motorola
Du-Pont	North American Phillips
Eaton	Northrop
Emerson Electric	Pan American
FMC	Penn Central
Fairchild Industries	RCA
Ford	Raytheon
General Dynamic	Sanders Associates
General Electric	Signal Companies
General Motors	Singer
General Tire	Sperry
Goodyear	TRW
Gould	Tally
Grumman	Teledyne
Harris	Tenneco
Hercules	Texas Instruments
Hewlett Packard	Textron
Honeywell	Todd Shipyards
ITT	United Technologies
IBM	Varian Associates
LTV	Westinghouse
Litton	

APPENDIX B

CORPORATE CAPITAL INVESTMENT AND PRODUCTIVITY IMPROVEMENT SURVEY

1. Do you consider current DOD regulation guidance and policy adequate incentive to encourage a significant level of corporate investment in cost reduction equipment and/or processes?
2. What current manufacturing cost reduction investment incentives do you feel are most important?
3. Comment on the effectiveness of the Weighted Guideline factors.
 - a. Productivity
 - b. Capital Employed
4. What motivates your company to invest in manufacturing cost reduction equipment?
 - a. Competition
 - b. Cost savings
 - c. Win a contract
 - d. Other
5. Do you investment more heavily in commercial ventures as opposed to government business? If so, why?
6. Do you feel you have been adequately rewarded by increased profit dollars for past expenditures on capital equipment?
7. Have you ever been able to substantiate a productivity reward on the Weighted Guidelines?
8. Are negotiated profits related or determined by the DOD Weighted Guidelines? If not, what determines negotiated profit levels?
9. How do you finance capital equipment purchases?
 - a. Internal funds
 - b. Borrowed funds
 - c. Other
10. Are you seeking to increase or decrease your share of government contracts? In either, case, what motivates your company strategy?

11. How much of your IR&D budget is spent on manufacturing technology type projects? Would government funding of these types of projects encourage you to invest in implementing capital equipment? Why?
12. How could government contracts be modified to provide for increased cash flow/ROI to provide an incentive for investing in manufacturing cost reduction projects? Be specific. Provide sample contractual language.
13. Do you feel award fees are useful as incentives for manufacturing cost reduction investments? If so, what criteria should be used?

APPENDIX C

SERVICE PERSONNEL CONTACTED REGARDING PERCEPTIONS OF EFFECTIVENESS OF WEIGHTED GUIDELINES TO INDUCE CONTRACTORS TO INVEST IN COST REDUCING FACILITIES AND EQUIPMENT

Garth Brown
Special Assistant to Deputy Chief of Naval Materials
(Contracts and Business Management) for IMIP
U.S. NAVSEA Systems Command (C06L1)

Dr. Linda Brandt
Special Assistant to Deputy Chief of Naval Materials
(Contracts and Business Management) for IMIP
U.S. Navy Material Command (MAT 02M)

LTC Sam W. Marsh III
Action Officer (DAMA/PPM/P)
U.S. Army Headquarters

Dan Cundiff
Industrial Specialist DRCPP/IPP
U.S. Army, DARCOM

Bernie Lavoie
Director for Productivity and Technology Modernization
Directorate of Manufacturing ALM/P
U.S. Air Force Electronic Systems Division

LTC Rich Williford
Program Element Monitor
Air Force Industrial Base Program/RDCM
U.S. Air Force Headquarters

Major Thomas A. Fitzgerald
Technology Modernization Program Manager
Deputy for F-16 ASD/YPM
U.S. Air Force Aeronautical Systems Division

Carl Lombard
Deputy Director for Manufacturing and Quality Assurance
Deputy Director for Propulsion/ASD/YZD
U.S. Air Force Aeronautical Systems Division

John Lally
Manufacturing Manager Directorate of Manufacturing
Deputy for Acquisition Logistics and Technical Operations/ALMP
U.S. Air Force Aeronautical Systems Division

Ed Houston
Productivity Director
Chief of Productivity Management Division/PDM
U.S. Air Force Space Division

Mr. Shin Inouye
Air Force Materials Lab Representative/AFWAL/ML
U.S. Air Force Ballistic Missiles Office

LTC Frank E. Doherty
Directorate for Industrial Productivity
OUSDRE(AM)IP
Office of the Secretary of Defense

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<p>The main objective of this report was to determine the adequacy of the present Weighted Guidelines profit policy for improving the productivity of defense contractors. Our findings were that the Weighted Guidelines, even with the alterations made within the Defense Procurement Circular (DPC) 76-3 and Defense Acquisition Circular (DAC) 76-23, did not invite defense contractors to invest in cost reducing facilities or equipment. It is our perception this was due to the DOD emphasis upon cost-based pricing. Furthermore, it is our impression that the Weighted Guidelines is a sound and proper technique for determining a defense contractors profit, however, it should not be used as a method for inducing defense contractors to invest in cost reducing facilities or equipment.</p>					
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